

**Hurricane Risk and Property Insurance Markets:  
An Update and Extension**

Robert W. Klein  
*Center for RMI Research  
Georgia State University*

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Risk Management and Decision Processes Center  
The Wharton School, University of Pennsylvania  
3730 Walnut Street, Jon Huntsman Hall, Suite 500  
Philadelphia, PA, 19104  
USA  
Phone: 215-898-4589  
Fax: 215-573-2130  
<http://opim.wharton.upenn.edu/risk/>

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# Hurricane Risk and Property Insurance Markets: An Update and Extension

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Robert W. Klein

Center for Risk Management & Insurance Research  
Georgia State University

**Contact Information:**

Robert W. Klein  
Center for RMI Research  
Georgia State University  
P.O. Box 4036  
Atlanta, GA 30302-4036  
Tel: 404-413-7471  
E-Mail: [rwklein@gsu.edu](mailto:rwklein@gsu.edu)

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## **Hurricane Risk and Property Insurance Markets: An Update and Extension**

### **Abstract**

The intense hurricane seasons of 2004 and 2005 caused substantial instability in property insurance markets in coastal states in the US with the greatest pressure in Southeast. Florida has experienced the most severe problems followed by Louisiana. The 2006 and 2007 seasons were relatively quiet but losses from the 2008 Gulf Coast hurricanes were significant. The market developments in high-risk areas have generated considerable concern and some controversy among various groups of stakeholders. As both insurers and property owners seek to adjust and respond to changing circumstances, public officials are wrestling with how to deal with market changes and looking for remedies that will ease the pressures on consumers. In this context, it is important to understand how property insurance markets have been evolving and analyze the forces driving their dynamics. This paper analyzes and compares property insurance market conditions and developments in Florida and other selected Southeastern coastal states. This analysis documents the restructuring of these markets, the rising price of and tighter availability of insurance, and the substantial losses suffered by insurers that have adversely affected the supply of coverage. How insurance markets will continue to evolve under different risk and regulatory scenarios also is considered.

## **I. Introduction**

The intense hurricane seasons of 2004 and 2005 caused substantial instability in property insurance markets in coastal states in the US with the greatest pressure in Florida, Louisiana and other coastal states in the Southeast. The increased risk of hurricanes striking the US prompted significant changes in these same markets beginning in the early 1990s but the particularly intense hurricane activity during 2004-2005 has led to another wave of market adjustments. Both the loss shocks of the 2004-2005 storm seasons as well as the belief that hurricane risk has risen to a higher level (higher than that perceived prior to 2004) have been major drivers of the recent market adjustments. The fact that a severe hurricane did not strike the US in 2006 and 2007 was a welcome relief that allowed insurers and reinsurers to replenish some of their lost capital. Hurricanes returned with a vengeance in 2008 with 16 named tropical storms. Six storms (three designated as hurricanes) struck the US causing over \$13.6 billion in insured damages (excluding flood losses insured by the National Flood Insurance Program (NFIP)).<sup>1</sup> Hence, the threat of more hurricanes remains high and is still driving conditions in property insurance markets.

Following Hurricane Andrew in 1992, regulators allowed rates to increase gradually and insurers managed their exposures more carefully (see Grace, Klein and Kleindorfer, 2004). In Florida, there were especially significant changes in the structure of the homeowners insurance market as some insurers exited or retrenched and others came in to fill the gap. The early 1990s also witnessed the increasing use of catastrophe modeling as a means to assess, manage and price hurricane risk.

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<sup>1</sup> See Insurance Information Institute (2008b).

It appeared that by 2004 insurance markets had stabilized to a large degree and would remain relatively stable. However, the four major hurricanes that struck the Gulf Region in 2004 began to destabilize insurance markets and the tragic storm season of 2005 led by Hurricane Katrina further exacerbated market problems. The 2005 season was the most intense on record with 26 named storms and 14 designated as hurricanes (Insurance Information Institute, 2008b). This has led to another market shakeup as insurers have sought to implement further rate increases and make other adjustments to respond to increased hurricane risk. Whether the 2008 storm season will cause further market adjustments is uncertain.

Understandably, recent developments have generated considerable concern and some controversy among various groups of stakeholders. In the face of increased risk and uncertainty, insurers are seeking to establish rate structures and portfolios of exposures that will ensure their economic viability in the short and long term. Reinsurers are also making substantial adjustments – their prices increased as new capital flowed in to replace recent losses and to at least partially respond to the increased demand for catastrophe reinsurance. At the beginning of 2008, it appeared that affected property insurance and reinsurance markets had probably undergone the bulk of adjustments that insurers and reinsurers needed to make, Florida excepted. Indeed, some new insurers have entered these markets to write policies shed by other insurers. However, the situation is still fluid as insurers continue to assess their exposure and risk and the effects of the 2008 storm season. Indeed, the price of reinsurance rose with the January 1, 2009 contract renewals as discussed further below.

Affected property owners are concerned about sharp premium hikes and the diminished availability of coverage.<sup>2</sup> Legislators and regulators are squeezed between insurers' needs and consumers' growing displeasure as they seek to develop policies that will sustain viable insurance markets. Although the relatively benign storm seasons of 2006-2007 had been a welcome relief to insurers and others, it also undermined public acceptance of insurers' rate increases and other actions, as well as increased political pressure on government officials to constrain insurers and to ease conditions for consumers.

This was reflected in a wave of legislative and regulatory actions that have varied among coastal states. Florida has sought to impose severe regulatory constraints on insurers that have further diminished the supply of private insurance. Texas also has taken a somewhat hard line but nothing that approaches Florida's policies. In contrast, Louisiana has sought to improve the regulatory environment for insurers to support the supply of private insurance, although not all of its actions have done so. Regulatory and legislative actions in other states vary but generally have been much more benign than those in Florida and Texas.

This paper examines market conditions in selected Southeastern states to the extent that it is possible to do so with available data. The states selected for this analysis are Alabama, Florida, Louisiana, Mississippi, South Carolina and Texas; North Carolina will be included in a future version of this analysis. The assessment of market conditions in Florida is fairly detailed given the significance of its problems and the availability of considerable data. The analysis of other states is more limited but still informative.

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<sup>2</sup> A series of articles in Florida newspapers document the growing displeasure of homeowners about the rising price and tighter availability of insurance.

Although the issue of catastrophe risk has been eclipsed by the financial market crisis in terms of public attention, it continues to have significant effects on insurance markets and property owners in coastal areas.

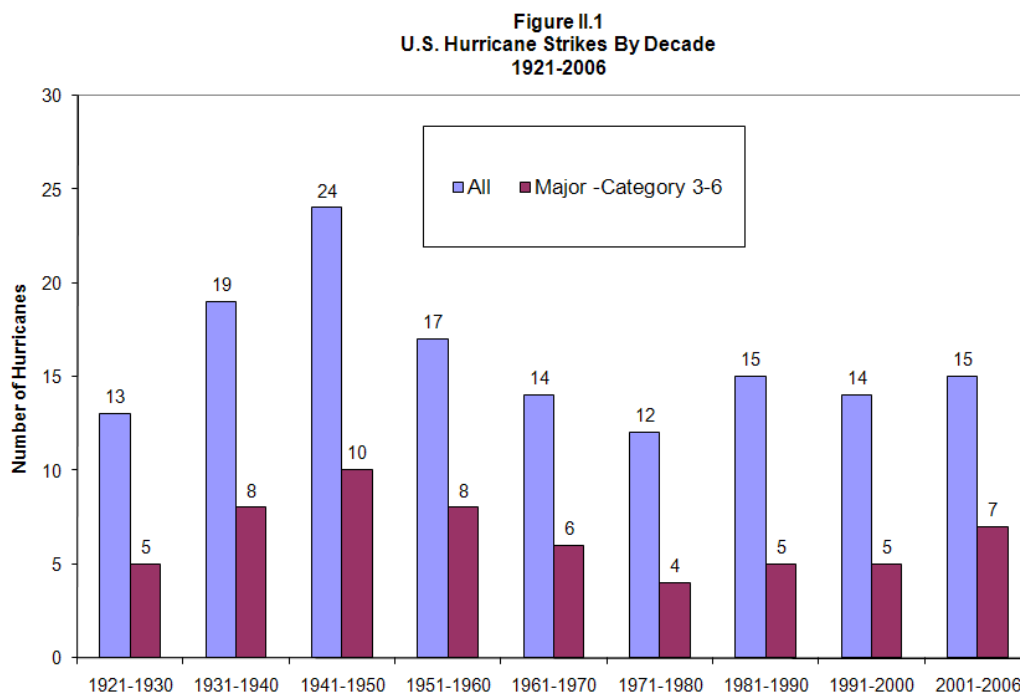
The next section of this paper reviews the environmental, economic and regulatory context for property insurance. Sections III, IV and V examine the structure, conduct and performance of homeowners insurance markets in Florida and the other Southeastern states with particular emphasis on recent developments. The last section of this paper concludes with a summary of the key observations and discusses further research.

## **II. Hurricane Risk and Insurance Markets**

To understand developments in property insurance markets in coastal states, one must understand the environmental, economic and regulatory contexts in which these markets function. The environmental context comprises short-term and long-term weather patterns and cycles – principally the frequency and intensity of tropical storms and hurricanes striking different areas. The natural environment interacts with the important aspects of the economic environment – the growth and geographic distribution of commercial and residential property development. Together, these factors heavily influence the property exposed to hurricanes and the demand for and supply of insurance. The governmental framework overlays and affects insurance markets in a number of ways and also influences the pattern of economic development and its vulnerability to hurricanes.

## A. Shifting Risk and Storms

History and meteorological science document the cyclical nature of weather patterns and storm activity. The recorded history of storm activity is relatively short but still reflects its cyclical nature. Figure II.1 plots the number of hurricanes striking the US by decade from 1920-2006 and also distinguishes the number of more severe – Category 3-5 – hurricanes.<sup>3</sup> Hurricane frequency and intensity increased over the first three decades of this period and then fell during the next three decades. Storm activity intensified again starting in the late 1980s through the present. The relatively high figures for the 2001-2006 period (which is less than a decade) reflect the severe 2004-2005 storm seasons.



Source: NOAA

<sup>3</sup> The reader should note that these are hurricanes that struck the US and do not include other hurricanes in the Atlantic and Gulf areas that did not strike the US. Hurricane intensity is measured on the Saffir-Simpson scale (see NOAA, 2006).

Atlantic hurricane activity was low in 2006 but picked up again in 2007. In 2007 there were 14 named storms, six of which were hurricanes and two were major hurricanes. However, the US dodged the two Category 5 hurricanes that struck Costa Rica (Dean) and Nicaragua (Felix). Only Hurricane Humberto struck the US (Texas) but it was a relatively short-lived and low-intensity (Category 1) event. In 2008, there were 16 named tropical storms, six of which struck the US. Of these six storms, three were designated as hurricanes – Hurricane Dolly, Hurricane Gustav, and Hurricane Ike. All three hurricanes were Category 2 storms when they made landfall. Together the six storms resulted in estimated insured losses of more than \$13.5 billion (not including losses insured by the National Flood Insurance Program); this figure may increase as more information is gathered and estimates are revised. Klotzbach and Gray (2008) forecast an above average Atlantic hurricane season for 2009 with 14 named storms, seven of which will be hurricanes and three which will be “intense” (i.e., Category 3-5). Hence, while insurers avoided significant hurricane losses in 2006 and 2007, neither nature nor weather scientists have given them any reason to believe that hurricane risk has lessened, as the 2008 storm season demonstrated.

It is important to distinguish between short-term and long-term weather patterns. The number and intensity of hurricanes can be relatively low during any given year in a long-term cycle of greater storm activity. This reflects the many factors affecting storm activity in any slice of time. This is illustrated by the very active storm seasons of 2004 and 2005 followed by a relatively “quiet” 2006, greater storm activity in 2007 that spared the US, and the three hurricanes that struck the US in 2008. A detailed discussion of weather patterns is beyond the scope of this paper, but it is important to stress that short-

term factors can affect the number, severity and paths of storms in any particular year but long-term cycles ultimately determine the nature and cost of hurricane risk.

Hence, while storms tend to follow cyclical patterns there is still a significant random component to the occurrence of damaging hurricanes in any given year or even over several years depending on the confluence of both short-term and long-term weather variables. Nature's capriciousness is further demonstrated by the nature and paths of the hurricanes that do occur. There can be a high number of storms in a given year but the damages they cause are determined by where they strike and other factors. One severe storm striking a highly developed area could cause a large amount of economic losses.

This random nature of storm activity complicates insurers' efforts to supply insurance coverage under relatively stable terms that will ensure their short-term and long-term viability. The ability to develop accurate estimates of the risk of hurricanes and the limits of catastrophe risk modeling (i.e., "parameter uncertainty") further affect insurers' approach to hurricane-prone insurance markets.<sup>4</sup> It is not surprising that modelers and insurers appear to differ in their assessments of the level and nature of hurricane risk in coastal areas, although there is a general consensus that the risk has increased. The use of near-term versus long-term time horizons is one of many issues and decisions insurers face in catastrophe modeling.

## **B. Economic Development**

Storm activity is only one element of the conditions that determine the nature of catastrophe risk and the potential economic losses from hurricanes. The second important

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<sup>4</sup> The term "parameter uncertainty" refers to the difficulty in developing accurate probability distributions for catastrophe losses. At best, modelers and insurers can estimate these probability distributions using advanced methods but it is not possible to divine the "true" risk of loss.

factor is the pattern of economic development. During the active storm cycle in 1920-1950, coastal areas were less developed so storms striking these areas caused less property damage. During the next three decades there was considerable economic development in these areas but storm activity had lessened and does not appear to have impeded growth. Hence, considerable development occurred when hurricane losses and insurance rates were relatively low. A myopic sense of security contributed to large movements of people and the associated property development that would be at risk when storm activity began increasing in the 1980s. It also appears that little attention was paid to hazard mitigation (e.g., building hurricane-resistant homes), which has contributed to the catastrophe risk problem.<sup>5</sup>

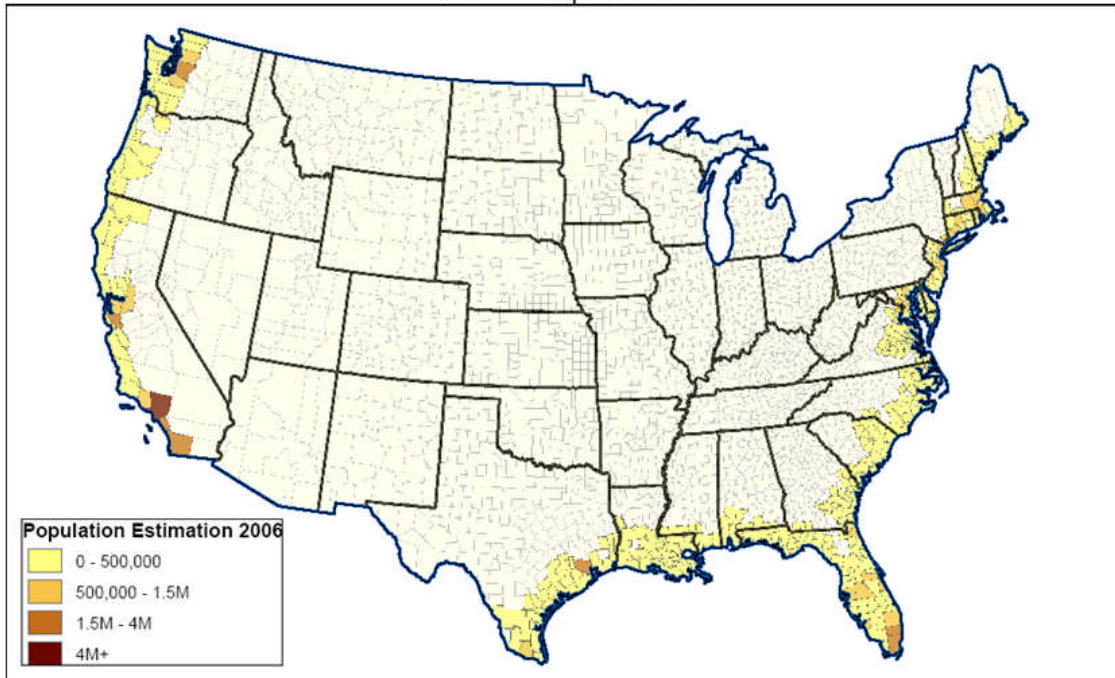
A 2008 National Oceanic & Atmospheric Administration (NOAA) study estimated that 153 million people lived in coastal counties in 2003 – representing 53 percent of the population but only 17 percent of the nation’s land mass (NOAA, 2008).<sup>6</sup> From 1980 to 2003, 33 million people were added to the coastal population representing a 28 percent increase overall, but the pace of growth has been much higher along the southern Atlantic and Gulf coasts where hurricane risk is the greatest. The NOAA study predicted further strong population growth in Southeastern and Gulf coastal areas. Indeed, southern coastal development has continued since 2003 as revealed by Figures II.2 and II.3 which depict the extent and pace of coastal population growth as of 2006. Florida has experienced the most rapid growth – its coastal population increased by more than 11 percent just between 2000 and 2005.

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<sup>5</sup> “As Hurricane Season Looms, State Aim to Scare,” *The New York Times*, May 31, 2006.

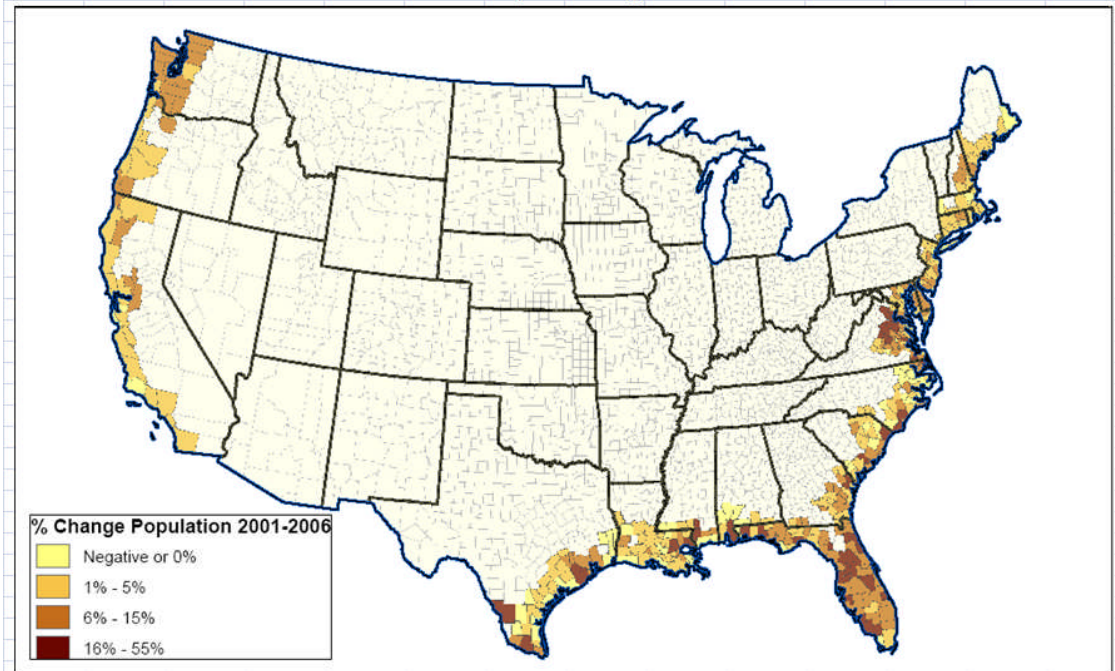
<sup>6</sup> A county is categorized as coastal if at least 15 percent of its land area is located within a coastal watershed. Coastal counties include areas along the Great Lakes.

Figure II.2  
U.S. Coastal Population: 2006



Source: NOAA

Figure II.3  
U.S. Coastal Population Change: 2001-2006



Source: NOAA

The trends in coastal population growth are paralleled by the value of coastal property. Table II.1(a) provides data on the value of Atlantic and Gulf coastal exposures by state in 2007. Florida ranks first among the states shown with \$2.5 trillion in coastal exposures. Texas ranks 3<sup>rd</sup> with \$895.1 billion in coastal exposures followed by Louisiana (7<sup>th</sup>) and South Carolina (8<sup>th</sup>). Coastal exposures in Florida constitute 79.9 percent of total exposures in the state. This figure is 35.2 percent in Louisiana. Both the amount of coastal exposures and its share of total statewide exposures are important factors affecting the conditions in property insurance markets.

**Table II.1(a)**  
**Estimated 2007 Insured Value (\$B)**  
**Coastal Properties by State**

State	Coastal Exposure	Total Exposure	Coastal Percent
Florida	2,458.6	3,119.6	78.8%
New York	2,378.9	3,851.1	61.8%
Texas	895.1	3,493.0	25.6%
Massachusetts	772.8	1,426.4	54.2%
New Jersey	635.5	1,875.2	33.9%
Connecticut	479.9	750.4	64.0%
Louisiana	224.4	638.4	35.2%
South Carolina	191.9	698.2	27.5%
Virginia	158.8	1,409.4	11.3%
Maine	146.9	250.0	58.8%
North Carolina	132.8	1,431.8	9.3%
Alabama	92.5	744.8	12.4%
Georgia	85.6	1,573.3	5.4%
Delaware	60.6	170.8	35.5%
New Hampshire	55.7	237.4	23.5%
Rhode Island	54.1	189.3	28.6%
Mississippi	51.8	394.6	13.1%
Maryland	14.9	1,078.4	1.4%
Coastal States	8,890.80	23,332.40	38.1%

Source: AIR Worldwide

Table II.1(b) shows the change in the estimated value of coastal property from 2004 to 2007. Increases in the value of coastal property increases the demand pressure on

insurance markets. Among all coastal states shown, the value of property in coastal counties increased by 23.4 percent. The value of insured coastal property increased by 29 percent in South Carolina and 26.9 percent in Florida. Other Southeastern states experienced smaller increases. It is interesting to note that among the states shown, Louisiana experienced the smallest increase in the estimated value of insured coastal property – 7.2 percent. The relatively small increase in Louisiana may be partly due to the extensive damage caused by Hurricane Katrina which may have impeded further economic development. Also, Katrina’s destruction may also have effectively removed some properties from the insurance market if these properties have not been rebuilt.

**Table II.1(b)**  
**Change in Estimated Insured Value (\$B)**  
**Coastal Properties by State: 2004 & 2007**

State	2004 Exposure	2007 Exposure	Coastal Percent
Delaware	46.4	60.6	30.6%
South Carolina	148.8	191.9	29.0%
Florida	1,937.4	2,458.6	26.9%
North Carolina	105.3	132.8	26.1%
New Jersey	505.8	635.5	25.6%
Maine	117.2	146.9	25.3%
New York	1,901.6	2,378.9	25.1%
Rhode Island	43.8	54.1	23.5%
Maryland	12.1	14.9	23.1%
Virginia	129.7	158.8	22.4%
New Hampshire	45.6	55.7	22.1%
Alabama	75.9	92.5	21.9%
Texas	740.0	895.1	21.0%
Connecticut	404.9	479.9	18.5%
Georgia	73.0	85.6	17.3%
Massachusetts	662.4	772.8	16.7%
Mississippi	44.7	51.8	15.9%
Louisiana	209.3	224.4	7.2%
Coastal States	7,203.9	8,890.8	23.4%

Source: III, AIR & author's calculations.

The long-term pattern of economic development has contributed to the damages caused and the number of households affected by storms striking these areas as well as their need for insurance coverage. Consequently, the pressure on property insurance markets rises because of economic development in areas subject to greater hurricane risk. Insurers and reinsurers are expected to increase the supply of insurance to meet greater demand but they heighten their catastrophe risk if they add to their exposures in high-risk areas. This strains existing risk transfer and diversification mechanisms and tightens the availability of insurance coverage for those seeking it. Arguably, over time, insurance and capital markets should accommodate these conditions if allowed to make necessary adjustments but regulatory and other government policies can interfere with this process.<sup>7</sup> Further changes in weather cycles and hurricane risk could also interfere with market stabilization.

### **C. Hurricane Risk**

Increased storm activity and rapid coastal development have combined to greatly increase the risk of economic losses from hurricanes. Property owners facing potential losses from hurricanes have several options. They can retain the risk, avoid it, mitigate it or transfer it. Retaining the risk implies that they will sustain the burden of any losses they incur, e.g., losing the equity in their home if it is destroyed. Avoiding the risk would probably entail selling their coastal property (or not buying it) and moving to an area where there is no hurricane risk. Mitigating the risk would involve steps to make their property less vulnerable to hurricane losses, such as strengthening their home against

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<sup>7</sup> Some would likely take issue with this statement. A number of government officials and legislators in coastal states, as well as several insurers, contend that a national catastrophe reinsurance program is needed to secure an adequate supply of insurance coverage in hurricane-prone areas.

wind damage and raising its height to make it less susceptible to flooding. Transferring the risk implies buying insurance or using some other means to move part or all of their losses to someone else. These measures are not mutually exclusive – a property owner might combine several techniques.

Insurance can be an efficient means of transferring many risks. An insurer can pool exposures and use the “law of large numbers” to effectively reduce its risk relative to that faced by an individual homeowner. Risk pooling by insurers works well when loss exposures are statistically independent but catastrophe risk poses special challenges, i.e., the potential for a large number of exposures to suffer losses arising from one event or a series events, such as hurricanes. The problems posed by catastrophe risk can best be understood by looking at Figure II.4 which depicts the probability of loss exceedance curve for Florida hurricane losses based on Risk Management Solutions (RMS) estimates.

Insurers are concerned about several aspects of this distribution, including the expected or annual average loss, the breadth of the distribution (i.e., its variance), and its long right-hand tail which reflects the relative probabilities of higher loss amounts, including very large catastrophes. All of these elements become important in underwriting, pricing and managing catastrophe exposures.

Finally, the nature and level of natural disaster risk varies significantly throughout the US. Few areas are essentially immune to some perils, e.g., tornadoes, but the probability of severe damage from hurricanes and earthquakes differs greatly as one would expect and as shown in Figure II.5.<sup>8</sup> The dark red shading along the Gulf and

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<sup>8</sup> We appreciate the permission of Risk Management Solutions, Inc. in the replication of this map and other information used in this report.

Atlantic coasts indicates the high level of hurricane risk in these areas. Large segments of the US population live in high-risk areas but many people live in less risky areas. Hence, the cost and availability of property insurance varies greatly across the country. On the positive side, insurers can geographically spread their exposures to diversify their risk but this does not permit them to charge less than an actuarially fair price to property owners in high-risk areas. This is a reality that some public officials and their constituents fail to understand – geographic pooling of exposures and risk diversification does not mean that low-risk property owners should or can subsidize the cost of insurance for coastal property owners.

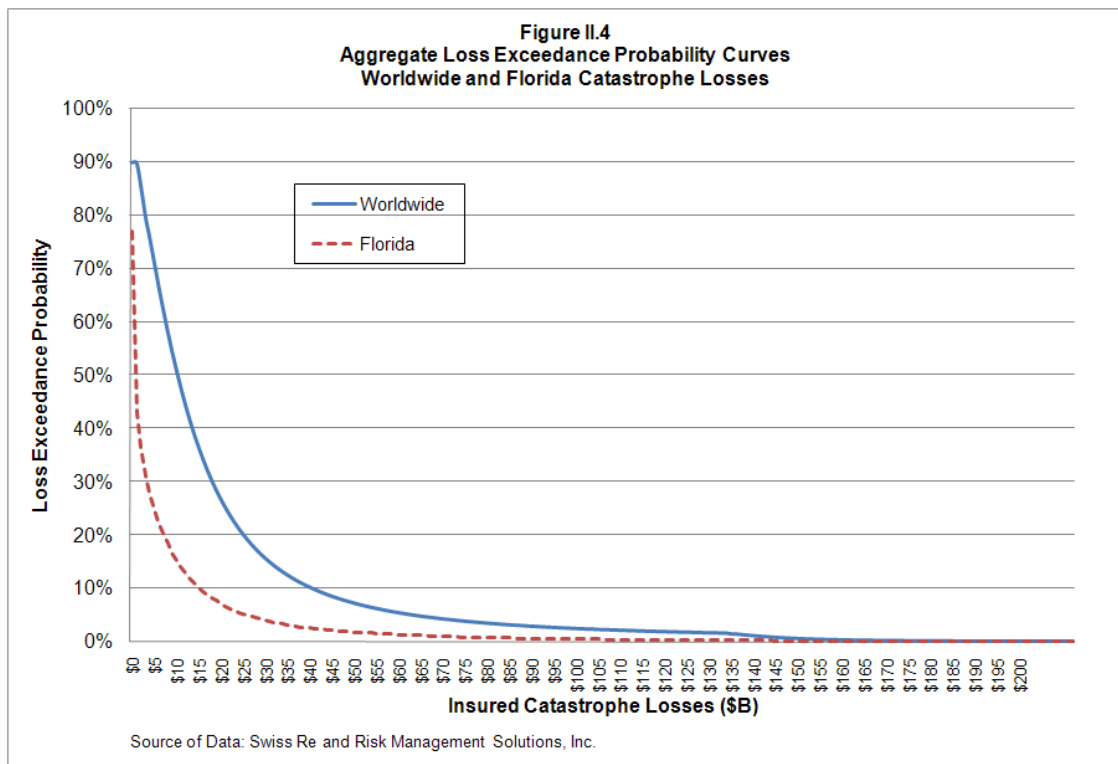
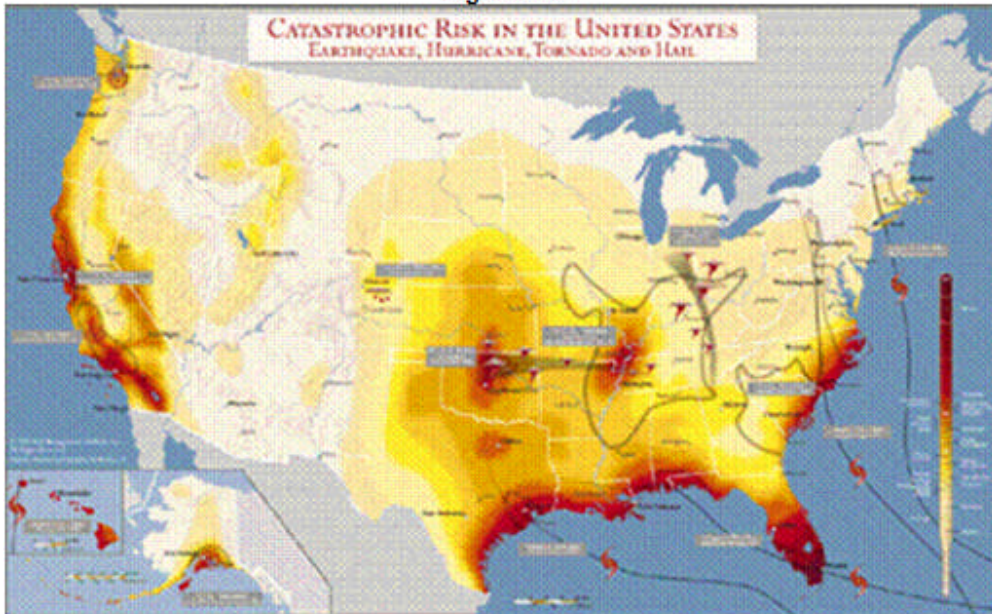


Figure II.5



Source: RMS

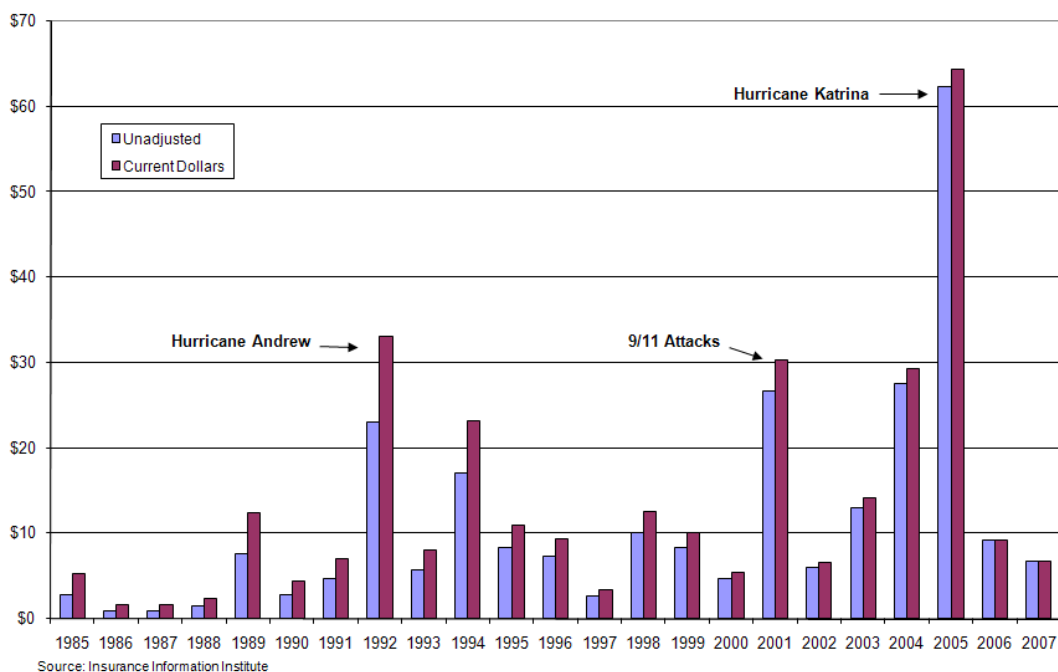
#### D. Insured and Uninsured Losses

While economic losses from hurricanes are highly variable, the record shows that catastrophe losses have increased substantially over the last 15 years, coincident with the increased frequency and intensity of storms and coastal development. Figure II.6 plots insured catastrophe losses from 1985-2007 (Insurance Information Institute, 2008b). Although the losses shown arise from all perils, including earthquakes and terrorism, hurricanes account for the lion's share of the catastrophe losses over this period.

This is evident from Table II.2 which lists the 10 most costly US catastrophes measured in 2007 dollars (Insurance Information Institute, 2008b). Eight of the 10 catastrophes were caused by hurricanes which account for 74.8 percent of the total losses from these events. This observation is not intended to minimize the threats from other

catastrophe perils.<sup>9</sup> At the same time, hurricane losses are the primary source of recent industry catastrophe losses and, among natural perils, hurricane risk is the primary source of pressure on property insurance markets along the Atlantic and Gulf coasts. Hurricane Katrina was by far the most costly storm causing more than \$43.6 billion in insured losses alone (in 2007 dollars) and generating in excess of \$100 billion in federal aid, in addition to other losses not reflected in these figures.

**Figure II.6**  
**Insured Losses for US Catastrophes (\$B)**  
**1985-2007**



It should be noted that the losses shown in Figure II.6 and Table II.2 are insured losses incurred by US insurers and do not reflect uninsured or total economic losses. They also do not include losses insured by the National Flood Insurance Program (NFIP). Uninsured and total economic losses are more difficult to determine but a rough rule of

<sup>9</sup> Of course, the existence of other catastrophe perils places demands on insurance and reinsurance capacity and hence indirectly affect the supply of insurance to cover hurricane risk.

thumb is that insured losses tend to account for about 50 percent of total losses. While the retention of some losses by property owners is efficient, there is also the possibility that the distribution and burden of some uninsured losses reduce social welfare. An examination of this issue is beyond the scope of this paper but it should be noted that the functioning of insurance markets affects the amount of uninsured losses which, in turn, can increase political and governmental pressure on insurance markets as well as demands for government disaster aid.

**Table II.2**  
**The Ten Most Costly Catastrophes in the US**

Rank	Date	Event	Insured Property Loss (\$M)	
			Dollars When Occurred	In 2007 Dollars
1	Aug. 2005	Hurricane Katrina	\$41,100	\$43,625
2	Aug. 1992	Hurricane Andrew	\$15,500	\$22,902
3	Sep. 2001	Terrorist Attacks	\$18,799	\$21,981
4	Jan. 1994	Northridge Earthquake	\$12,500	\$17,485
5	Oct. 2005	Hurricane Wilma	\$10,300	\$10,933
6	Sep. 2008	Hurricane Ike <sup>1</sup>	\$10,655	\$10,655
7	Aug. 2004	Hurricane Charley	\$7,475	\$8,203
8	Sep. 2004	Hurricane Ivan	\$7,110	\$7,803
9	Sep. 1989	Hurricane Hugo	\$4,195	\$7,013
10	Sep. 2005	Hurricane Rita	\$5,627	\$5,973

<sup>1</sup> Hurricane Ike losses are estimated and expressed in 2008 dollars.

Source: Insurance Information Institute

#### **D. Market and Regulatory Responses**

The sections below discuss insurance market developments in greater detail but it is helpful here to provide a brief overview of what has been occurring. After the intense storm season of 2004, it became evident that insurers were reassessing their catastrophe risk in the Southeast and Gulf regions and were beginning to make adjustments. These adjustments mainly took the form of regulatory filings for “modest” rate increases and

also some realignment of insurer's exposures in high risk areas. It is possible that some insurers began to tighten their supply of insurance towards the end of 2004 and the beginning of 2005; it is clear that by 2006 significant changes were occurring.

The second wave of storms and high losses that occurred in 2005 appears to have greatly increased many insurers' concerns about the catastrophe risk they faced, the adequacy of their rate structures and the amount of their exposures. As insurers and reinsurers assessed their losses from the 2005 storms, their pricing and underwriting adjustments escalated. This was associated with a recalibration of catastrophe models to reflect meteorologists' assessments of increased storm activity and other changes. A number of insurers filed for fairly large rate increases and decreased their exposures in high-risk areas.

Insurers' responses have varied as some initiated stronger pullbacks while others retrenched to a more modest degree. A few insurers are positioned for and have sought to expand their business in these areas to take advantage of the higher prices and policies shed by other insurers. Understandably, insurers with the greatest amounts of exposures in high-risk areas tended to retrench more than insurers with fewer exposures (see Grace, Klein and Liu, 2006). Also, the magnitude of insurers' adjustments vary by state with Florida and Louisiana experiencing the greatest changes; other states have experienced rate increases and insurer pullbacks but to a lesser degree.

Regulators' responses to insurers' actions have varied as well as evolved. In Florida, it appears that the initial wave of rate increases filed in 2004 through early 2006 were approved for the most part although they were subject to some constraints (see Klein, 2009). However, most recently, further insurer rate hikes have been challenged

and disapproved or reduced by Florida regulators. Texas regulators have also begun to challenge rate increases. A combination of growing consumer displeasure over previous rate increases as well as the lack of damaging hurricanes in 2006-2007 probably influenced regulators' resistance to further rate hikes. Regulators in other coastal states have tended to approve a greater portion of insurers' filed rate increases but these increases have been lower than the increases filed in Florida.

The strong displeasure of coastal property owners had a significant impact on the 2007 legislative and governor's elections in Florida; property insurance was identified as the most important issue to voters in a survey.<sup>10</sup> Consequently, when the new legislature convened and the new governor assumed his position, they embarked on a significant legislative agenda on insurance. They enacted a number of important changes that expanded the state's residual market mechanism – the Citizens Property Insurance Corporation (FCPIC) - and the Florida Hurricane Catastrophe Fund (FHCF), as well as imposed a number of constraints on insurers. All of these measures were intended to lower the cost of insurance but most were flawed and have had negative repercussions for the supply of private insurance and reinsurance, as well as impose significant financial risk on insurance buyers and taxpayers throughout the state. Florida's 2008 legislation further tightened the constraints on insurance markets. Other states have tended to much more cautious in terms of the legislative and regulatory measures that have been implemented. These legislative and regulatory changes are discussed in greater detail in Klein (2009) and some are noted in the discussion of market developments below.

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<sup>10</sup> See, for example, "Insurance Hikes Whips Up Demand for Legislation," *Bradenton Herald*, July 20, 2006 and "Rising Rates a Top Priority for Most Voters, Poll Shows," *Tampa Tribune*, October 26, 2006.

### **III. Conditions Affecting Insurance Market Structure**

To examine the structure, conduct and performance of property insurance markets, it is helpful to review some of the basic factors that affect market structure. This is particularly pertinent to property insurance markets subject to catastrophe risk. Catastrophe risk affects insurers' cost conditions in a significant way which, in turn, has important implications for the structure of property insurance markets. This section discusses the impact of correlated exposures and catastrophe risk, as well as the cost of reinsurance, catastrophe risk financing and regulation, on insurance market structure.

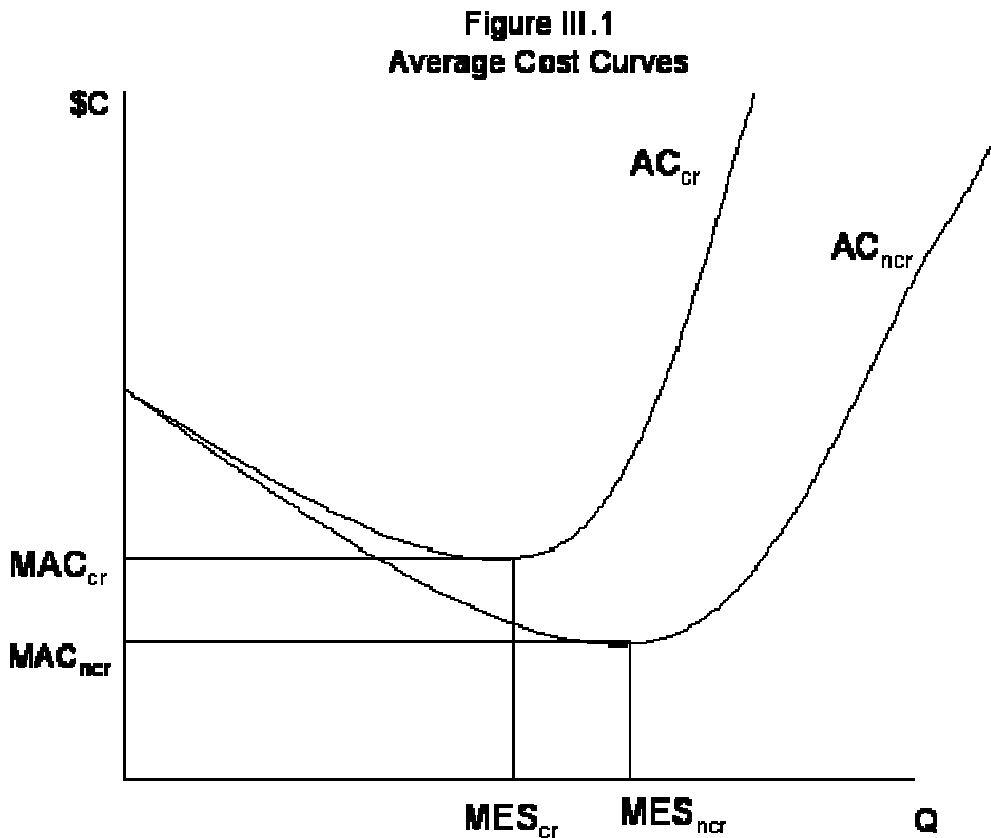
#### **A. Insurer Cost Factors**

##### **1. Catastrophe Risk and Economies of Scale**

The cost conditions facing firms are a major determinant of their number and size distribution within an industry or market. Typically, economists analyze the relationship between output and costs to determine how many firms can viably operate in a market and the optimal size of a firm in terms of the quantity of a good or service it produces. A typical firm cost function might reflect increasing returns to scale up to some level of output (the average cost per unit of output declines over this range of output) and decreasing returns to scale beyond this level of output (the average cost increases past this point).

Cost functions in many industries, including insurance, reflect decreasing average costs over an initial range of output and rising average costs beyond this point, i.e., U-shaped average cost curves. The low point in the average cost curve is the minimum efficient scale (MES) – the level of production at which a firm's average costs are lowest.

This is reflected in the shape of the typical average cost curve which is concave or U-shaped as shown by  $AC_{ncr}$  (the average cost curve when there are no correlated exposures or catastrophe risk) in Figure III.1.



The measure of the quantity of insurance ( $Q$ ), plotted on the X-axis, is not as straight-forward as it is in other industries. For example, the quantity produced by a sugar producer could easily be reflected by pounds of sugar as one pound of sugar is the same as another. For an insurer writing property insurance, simple quantity measures are elusive because each policy or exposure it writes could vary in a number of ways. In this simple theoretical illustration, it can be assumed that each exposure is identical in terms of the dollar amount of coverage and all other characteristics. Hence,  $Q$  represents the

number of identical exposure units written. This assumption simplifies the exposition to make some basic points, understanding that in the real world insurance quantity measurement is much more complicated.<sup>11</sup>

The explanation for a U-shaped cost curve is that the firm initially benefits from spreading fixed costs over a larger amount of output but at some point this effect is offset by rising variable costs due to rising input prices or other factors that cause the productivity of inputs to fall as production is pushed beyond a certain level.<sup>12</sup> Research on the cost functions of property-casualty insurers generally suggests they are U-shaped, although the “bottom of the U” may be flat over some range of output, i.e., insurers experience constant returns to scale until they reach an output level where their average costs begin to increase.

In this illustration, it is assumed that an insurer’s cost of capital is one of several components of its variable costs that also include its expected losses (claims payments) and expenses associated with the number of exposures written. As an insurer writes more exposures, it must hold more capital. Capital is needed to cover higher than expected losses (and/or other costs) that would exceed the amount of premiums and other revenues (e.g., investment income) that the insurer had received. However, when an insurer writes uncorrelated loss exposures, one would expect its marginal cost of capital per exposure to fall as it writes more exposures.

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<sup>11</sup> In empirical studies involving the quantity of insurance, economists have always struggled in terms of choosing among a set of imperfect quantity measures. These quantity measures could include the amount of premiums written, the number of exposure units, the amount of exposure in terms of the dollar amount of coverage sold, and the amount of losses paid or incurred. Their choices will vary depending on the nature of their analysis and the data available. All of these measures have their biases and other drawbacks which researchers must address in the empirical specification of their models.

<sup>12</sup> For example, when production is pushed beyond some point communication and coordination among workers and units within a firm can suffer leading to diminishing productivity. See Varian (1992) for an explanation of firm cost functions.

This assumption is predicated on the “law of large numbers” which implies that the variance of an insurer’s actual losses relative to its expected losses should decrease as it writes increasingly larger pools of “independent” exposures. The term “independent” implies that the chance that one exposure will suffer a loss is uncorrelated with the chance of loss for other exposures. In many lines of insurance loss exposures are considered to be statistically independent. For example, for an insurer writing auto insurance, the likelihood that a vehicle it insures in Iowa will suffer a loss is essentially uncorrelated with the likelihood that a Florida vehicle it insures will suffer a loss.

According to financial and economic theory, the amount of capital an insurer must hold is related to the variability of its net income which, in turn, is affected by the variability in its losses (claims payments). Greater variability compels an insurer to hold more capital; less variability allows it to hold less capital. If an insurer is compelled to increase the amount of capital it holds, this will raise the marginal cost of capital per exposure. Also, greater variability in an insurer’s profits or net income will increase the return that its owners will demand to compensate them for the greater risk associated with greater variability. This also raises the cost of capital for an insurer, all other things equal.

The problem of correlated risk exposures or catastrophe risk adds a significant new dimension to insurer cost functions. Correlated loss exposures violate a key assumption underlying the law of large numbers. As an insurer increases the number of correlated exposures it underwrites in a given geographic areas, the variance of its actual losses will increase rather than decrease. It also exposes the insurer to especially large losses that could arise from one event, e.g., a hurricane.<sup>13</sup> In turn, an insurer’s marginal

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<sup>13</sup> Recalling Figure II.4, a log-normal probability distribution is often used to depict the potential losses faced by an insurer facing catastrophe risk. The long right-hand tail indicates the insurer’s exposure to very

cost of capital per unit of insurance should increase as it writes more insurance on correlated exposures. This means that its variable costs will increase as an insurer adds correlated risk exposures. The increase in variable costs can be reflected in the insurers' need to carry additional surplus, buy more reinsurance, and/or pay a higher return to its owners to compensate them for the higher risk it retains.

The important implications of this conception of an insurer's cost function are twofold: 1) the cost function pivots upward; and 2) the shape of the cost function changes. Specifically, the slope of the average cost curve to the left of the MES becomes more shallow, the MES shifts to the left (i.e., decreases), and the average cost curve climbs more steeply to the right of the MES. The average cost curve with catastrophe risk is depicted as  $AC_{cr}$  (the average cost curve when there are correlated exposures or catastrophe risk) in Figure III.1. These changes in an insurer's cost function will compel it to charge a higher price for the insurance it sells and its maximum efficient output level will be lower than if its loss exposures were not correlated. It also implies that an insurer will want to underwrite fewer exposures in a given geographic area, all other things equal.

In terms of market structure, the catastrophe risk cost factor would be expected to decrease the market shares of the leading insurers, all other things equal.<sup>14</sup> The leading insurers will find it more costly to retain a large share of the market than if catastrophe risk was not a factor. Small insurers also may find it difficult to sustain operations in

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high losses. As an insurer writes more correlated exposures, both the variance and the skewness of its probability of loss distribution increase.

<sup>14</sup> Here we reenter the real world, where market share is typically measured by the amount of premiums an insurer writes. Premiums are a different measure of quantity than the number of exposure units. While premiums confound a number of things (e.g., the number of homes written, the amount of coverage on each home, the prices charged, etc.), the basic intuition articulated above should still be applicable as we observe insurance markets in the real world and measure output by premiums written.

catastrophe-prone markets because they lack sufficient capital and geographic diversification to counter the risk of correlated exposures they would encounter. Hence, one would expect that the market shares of the leading insurers will decrease and some smaller insurers may also exit the market. Overall, one would expect measures of market concentration to decrease as they tend to be based on or dominated by the market shares of the leading insurers.

Of course, in the real world, the cost factors that affect the supply of insurance and market structure are more complex than what are described above. For example, insurers also must consider economies of scope, e.g., the efficiencies gained from selling both home insurance and auto insurance to the same household. If an insurer is unwilling to sell home insurance to some property owners, they lose the associated scope economies from selling auto insurance to the same property owners. Also, these property owners may decide or feel compelled to move their auto insurance to another carrier. There are other considerations such as the sunk costs associated with establishing a reputation and distribution network and adverse regulatory responses. These other factors may dampen the hypothesized structural effects of higher costs due to catastrophe risk, but it is unlikely that they will eliminate them. Hence, the predictions in the preceding paragraph should still hold.

## **2. The Supply and Cost of Reinsurance**

An additional factor that affects the supply of property insurance at the primary level (i.e., policies issued to homeowners) is the supply and cost of reinsurance. Reinsurance is especially important in diversifying primary insurers' catastrophe risk exposure. Insurers and reinsurers also may use alternative forms of risk financing such as

cat bonds, although reinsurance remains the predominant means of diversifying cat risk. Typically, primary insurers use cat reinsurance/financing to transfer some of their risk at “higher layers” of their risk exposure. “Higher layers” refers to losses that would occur above some retention level. In these arrangements, insurers are seeking to diminish their net losses from a hurricane or series of hurricanes that would otherwise deplete their capital. At the same time, even with large amounts of catastrophe reinsurance, primary insurers tend to retain a significant amount of hurricane losses which will still depress their earnings.

As would be expected, reinsurers also sustained substantial losses from the 2004-2005 storm seasons that temporarily depleted their capital.<sup>15</sup> This factor combined with the reassessment of hurricane risk caused reinsurance prices to rise. Figure III.2 tracks the price of catastrophe reinsurance for the period 1990-2008. The rise in reinsurance prices was necessary to reflect the new, higher level of risk and also attract new capital to support the continued supply of cat reinsurance. The rise in reinsurance prices is difficult to quantify precisely but an average increase in the area of 25 percent would probably be a crude but reasonable characterization of what happened. The higher cost of reinsurance, in turn, necessarily increases the prices primary insurers must charge for property insurance in high-risk areas. In essence, reinsurance serves as a substitute for holding more capital, recognizing that they are not perfect substitutes and various considerations come into play in insurers’ decisions on how much capital they will hold and how much reinsurance they will buy.

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<sup>15</sup> See Georgia State University, et al. (2007) for a more detailed discussion of developments in catastrophe reinsurance and catastrophe risk financing.

**Figure III.2**  
**Rate on Line (ROL) for Property Catastrophe Reinsurance**



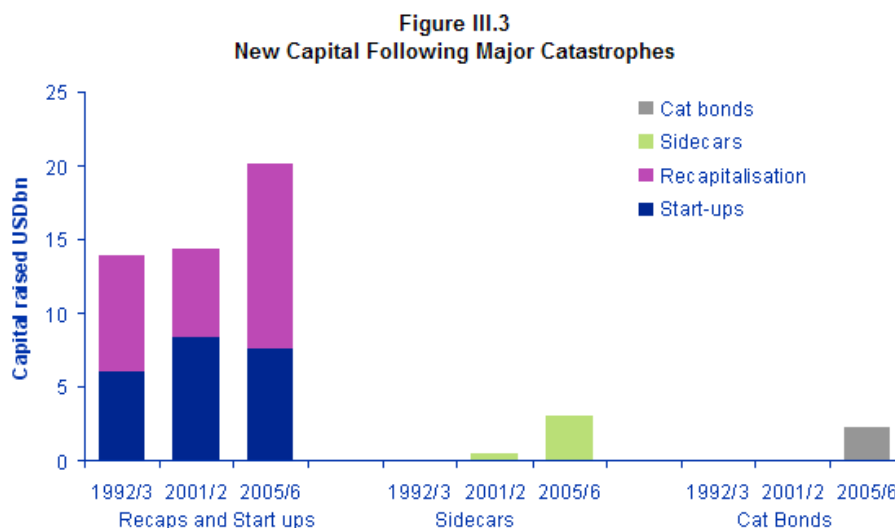
Reinsurance markets did respond with large capital inflows and the formation of additional reinsurers after 2005 (see Figure III.3).<sup>16</sup> This capital infusion restored and expanded the supply of cat reinsurance which aided primary insurers in continuing to supply primary insurance coverage and manage their net catastrophe risk exposure. It appeared that cat reinsurance markets had begun to stabilize with reinsurance prices leveling out and falling in 2007-2008 as supply came into alignment with demand (Guy Carpenter, 2008).

However, due to losses from the 2008 storm season and weak credit markets, Guy Carpenter reported that the price of catastrophe reinsurance rose by 8 percent with the January 1, 2009 contract renewals (Guy Carpenter, 2009). Weak stock and bond markets have diminished reinsurers' capital and made it more difficult for them to raise new capital. This is a different economic climate than that what existed after the World Trade Center attacks in 2001 and the 2004-2005 storm seasons when large amounts of capital were injected into the reinsurance industry. This tighter supply of capital, combined with

<sup>16</sup> I wish to acknowledge Lane Financial LLC for permission to reprint this figure.

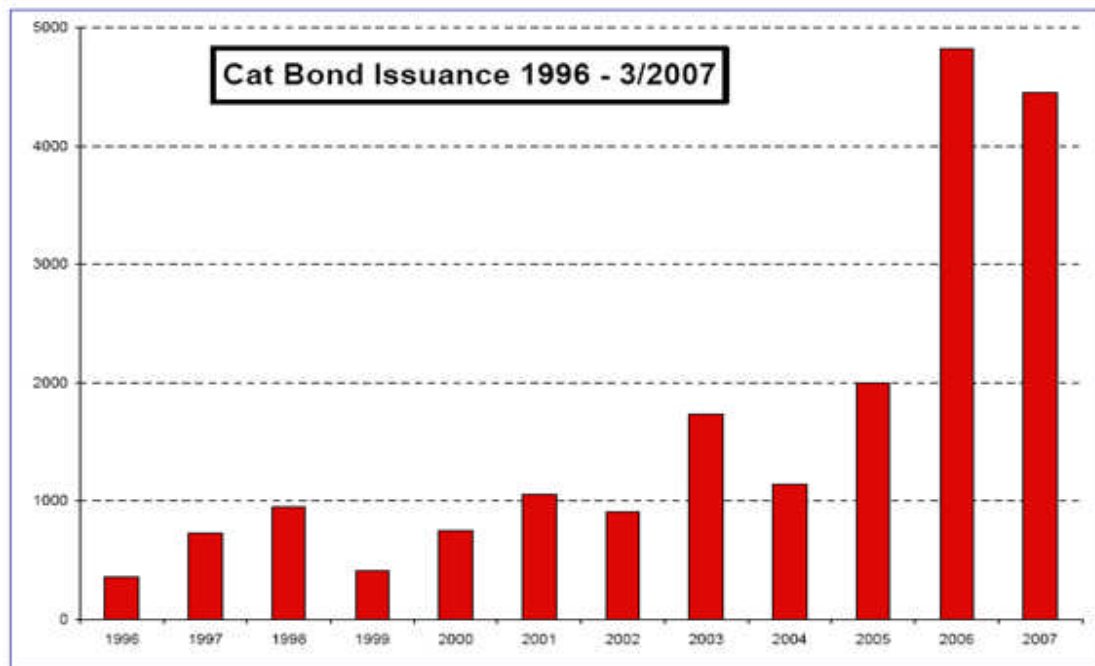
catastrophe losses in 2008 have been indentified as the primary contributors to rising reinsurance prices. An increase in reinsurance prices will likely cause the cost of primary insurance to rise.

The use of alternative cat risk financing devices has increased since 2005 (Lane and Beckwith, 2007). This has primarily taken the form of the issuance of cat bonds and the increase in other innovations such as “reinsurance sidecars.” Figure III.3 shows the inflow of capital into reinsurance and alternative risk financing and Figure III.4 tracks the volume of cat bonds issued for the period 1996-2007. While the amount of risk transfer represented by these alternative devices remains relatively small in relation to traditional cat reinsurance, they still have increased capacity and have the potential for further increasing capacity going forward. Hence, over the long term, alternative cat risk financing has and will continue to bolster the supply of property insurance. However, in the short term, the current problems in financial markets may also have a detrimental effect on alternative catastrophe risk financing.



Source: Lane Financial LLC

Figure III.4  
Cat Bond Issuances Between 2006 and March 2007 (\$M)



Source: Lane Financial LLC

## B. The Regulatory Factor

The government framework under which firms operate also has significant effects on market structure, conduct and performance. The regulation of insurers is particularly intensive and, hence, can greatly influence insurance markets. Regulation is discussed in greater detail in Klein (2009) but I note several important regulatory factors here. One such factor is the regulation of insurers' entry into and exit from a market. The evidence suggests that regulators impose some costs on market entry and these costs, in turn, could impede entry to some degree (Klein, 1995). For example, insurers must meet minimum capital and other financial requirements and apply for a license to do business in a state. At the same time, the entry of 40 new companies into the Florida market since 2005 (as reported by the Florida Office of Insurance Regulation (FLOIR)) suggests that entry

barriers have not been a significant impediment in that state. There have also been a significant number of market entries in other Southeastern states.

Regulators can also make it costly to exit markets. In particular, some states may attempt to compel an insurer to exit all lines of business if it seeks to exit a line subject to availability problems, such as home insurance. In fact, the Florida legislation has sought to ban the formation of Florida-only subsidiaries of national insurer groups and requires auto insurers to sell homeowners insurance in the state if they offer it in other states. It is not clear that a state's demand that an insurer exit all markets in a state (if it stops writing home insurance) would sustain legal/constitutional challenges. This policy could delay the exit of insurers from a state market but not ultimately prevent it.<sup>17</sup> At the same time, raising the cost of exit can have the undesired effect of discouraging entry. This observation applies primarily to national insurers with business in multiple states. Most of the new insurers entering the Florida market are small, Florida-only companies.

The extent to which regulators constrain insurers' discretion with respect to pricing, policy terms and underwriting can also affect entry and exit and other aspects of market structure. Severe regulatory constraints can deter entry and also hasten insurers' retrenchment or exit from a market. As discussed below, after an initial period of severe regulatory constraints following Hurricane Andrew, it appears that Florida's regulators approval of gradual rate increases during the 1990s helped to encourage new insurers to enter the market and may also have eased pressure on established insurers to retrench or withdraw from the market (Grace, Klein and Kleindorfer, 2004). However, regulators' continued compression of rates in some high-risk areas and more recent resistance to

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<sup>17</sup> As discussed by Grace, Klein and Kleindorfer (2004), it is reasonable to expect that there is a point where the losses from staying in a market exceed the costs from exit.

further rate increases could push insurer to retrench from the market to a greater degree than they would under more flexible regulatory policies. Insurers are already sending signals to that effect. State Farm's recent announcement that it intends to withdraw from the Florida homeowners insurance market is especially significant and is discussed further below.

#### **IV. Insurance Market Structure**

The next two sections dissect insurance market developments using an established industrial organization approach – the structure-conduct-performance framework. The basic notion underlying this framework is that structure affects conduct and conduct affects performance. However, it is also understood that path of effects moves in both directions, i.e., conduct and performance can affect structure. Furthermore, this framework is harnessed to analyze developments in a market that is subject to several factors that are not typically found in other industries, requiring some creative extension and application of standard methods. I look at market structure at both a company and a group level and assess market structure using both premiums and the amounts of insurance (where available) as measures of quantity.

##### **A. Entries, Exits and Market Concentration**

The effects of increased hurricane losses and risk on the structure of the property insurance markets of coastal states are still developing and there is a lag in the data available to track market changes. Still, it is important to glean what we can from these

data and offer observations on how insurers appear to be adjusting their market positions. I examine data through 2007 and begin by looking at shifts in the market positions of leading writers of homeowners insurance in Florida in Table IV.1.

## **1. Florida**

Florida is discussed in some detail in this paper for several reasons. One is to reveal that structural changes in its property insurance market have been much greater than in other Southeastern coastal states. Much of this is likely due to the confluence of high hurricane risk and the large proportion of Florida properties in coastal areas. Florida's regulatory policies also have likely contributed to its significant market restructuring but it is difficult to disentangle the effects of regulation from the effects of other factors. Also data are available to analyze market structure changes at a sub-state level in Florida that are not available for others states.

Table IV.1 ranks the top 20 homeowners insurers (on a group basis) in Florida in 2007 and also shows their market rankings and shares for the years 1992, 2000, 2005 and 2006.<sup>18</sup> The Florida Citizens Property Insurance Corporation (FCPIC) is not included in this aspect of the analysis as it is a residual market mechanism and our interest here is in the voluntary market in which insurers compete and make decisions about how much insurance they are willing to supply. We can see from this table that there have been dramatic changes in the Florida market since 1992. The top group in 2007 – State Farm – was also the top group in 1992. However, its market share dropped from 30.5 percent to

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<sup>18</sup> In analyzing insurance market structure, economists typically define a firm at the group level, combining all of the premiums (or other output measures) of all the companies within a group. The presumption is that the members of a group do not compete with each other and function collectively as one unit. A stand-alone company is treated as a group of one.

22.0 percent. Allstate was the second leading group through 2006 but dropped to fifth in 2007. Its market share declined from 20.4 percent in 1992 to 4.1 percent in 2007.

**Table IV.1**  
**Changes in Leading Insurers' Market Share**  
**Florida - 1992, 2000, 2005-2007**

Name	2007			2006		2005		2000		1992	
	R	DPW	MS	R	MS	R	MS	R	MS	R	MS
State Farm Group	1	1,560,468,694	22.0%	1	21.4%	1	20.7%	1	20.1%	1	30.5%
Universal P&C Ins. Co.	2	449,795,430	6.3%	4	5.0%	8	2.8%	26	0.9%		
USAA	3	379,397,010	5.3%	5	4.7%	6	4.5%	4	5.2%	3	4.4%
Tower Hill Grp.	4	321,833,252	4.5%	3	5.1%	4	5.0%				
Allstate Grp.	5	288,283,830	4.1%	2	7.8%	2	8.7%	3	11.2%	2	20.4%
Nationwide Grp.	6	250,343,375	3.5%	6	4.4%	5	4.8%	5	5.0%	5	4.1%
Royal Palm Ins. Co.	7	246,083,238	3.5%	55	0.2%						
Liberty Mutual Grp.	8	239,255,396	3.4%	7	3.3%	7	3.0%	10	1.8%	12	1.5%
St. Johns Ins. Co.	9	234,956,932	3.3%	12	2.2%	25	1.1%				
Arx Holding Corp. Grp	10	217,663,690	3.1%	8	3.2%	13	2.1%	25	0.9%		
American Int Grp.	11	175,568,026	2.5%	10	2.4%	11	2.1%	15	1.3%	53	0.2%
Universal Ins. Co. Grp.	12	173,729,567	2.4%	9	5.0%	18	1.4%				
Chubb & Son Grp.	13	164,855,442	2.3%	11	2.3%	10	2.2%	8	2.4%	6	2.9%
Hartford Fire & Cas Grp.	14	133,295,306	1.9%	14	2.0%	12	2.1%	7	2.6%	9	2.3%
United P&C Ins. Co.	15	117,442,276	1.7%	13	2.1%	16	1.8%	36	0.5%		
Travelers Grp.	16	109,165,275	1.5%	15	1.9%	9	2.2%	6	3.2%	4	4.2%
Southern Farm Bureau Grp.	17	108,252,804	1.5%	21	1.3%	18	1.4%	9	2.1%		
First Protective Ins. Co.	18	103,320,384	1.5%	20	1.3%	32	0.7%	43	0.4%		
21st Century Holding Grp.	19	100,481,479	1.4%	17	1.7%	20	1.4%				
Southern Fidelity Ins. Co.	20	92,542,922	1.3%	40	0.4%	58	0.1%				

Source: NAIC Financial Database; author's calculations.

It is apparent that these two insurers have significantly reduced their “relative presence” in the Florida market (as measured by premiums). This development is not surprising given these insurers’ expressed need to limit their catastrophe exposures to what they consider more sustainable levels. The change in Allstate’s position is particularly significant and indicates significant market retrenchment.<sup>19</sup> It is also interesting to note that State Farm’s market share, based on premiums, actually has increased since 2000. However, State Farm’s market share based on the number of

<sup>19</sup> See, for example, “Allstate Considers More Cancellations,” *Tampa Tribune*, May 19, 2006.

homeowners insurance policies it has written dropped from 27.4 percent in the first quarter of 2000 to 24.6 percent in the fourth quarter of 2007. State Farm's plan to withdraw from Florida's homeowners insurance market will have a significant impact on the structure of the market in future years.

Another significant development has been the entry/expansion of some insurers as other companies have retrenched or withdrawn from the market. Eleven of the top 20 groups in 2007 entered the market after 1992. This reflects several phenomena. Two important factors were the startup of several new insurers in Florida during the 1990s and entries by other established insurers. The retrenchment or exit of some insurers created opportunities for other insurers to fill the gap. Florida has also encouraged and helped to finance the creation of new companies and a second wave of insurers entered the market after the 2004-2005 storm seasons. The FLOIR has announced that 40 insurers have entered its property insurance market since 2005. Overall, there has been considerable entry and exit among insurers in the Florida market over the last decade and a half as well as movement among the top 20 insurer groups.

Most of recent market entrants are small regional or single-state companies. One way of demonstrating this is by looking at the ratio of an insurer's Florida's homeowners premiums to its combined homeowners insurance premiums in all states. In 1992, among insurers writing homeowners insurance in Florida, the mean Florida/Countrywide premium ratio was 6.6 percent and the median ratio was 18.4 percent. In 2007, the mean ratio had increased to 63.2 percent and the associated median ratio had increased to 90.3 percent; 42 of the 92 insurer groups in the Florida homeowners market wrote 100 percent of their premiums in Florida. The shift to less geographically-diversified insurers also is

apparent in looking at the top 20 writers (at a group level). In 1992, only one of the top 20 insurers wrote 100 percent of their homeowners premiums in Florida.<sup>20</sup> In 2007, 11 of the top 20 insurers wrote 100 percent of their homeowners premiums in Florida. Further, only nine of the top 20 insurers are affiliated with large groups that write homeowners insurance on a national basis.<sup>21</sup>

Entry into the Florida market carries risk, especially for insurers with large portions of their exposures concentrated in the state. This was demonstrated by the rapid rise of the 3<sup>rd</sup> and 4<sup>th</sup> leading groups in 2005 – the Poe and Tower Hill groups. Poe was hit hard by the 2004 and 2005 storm seasons and was placed into liquidation by regulators in 2006. Tower Hill has been more diversified with business in other Southeastern states but it also had been stressed by the 2004-2005 storms and was downgraded by A.M. Best. This illustrates the drawbacks of relying heavily on local or regional insurers to fill large gaps left by larger, national insurers. Smaller insurers can bolster their capacity with extensive use of reinsurance but this comes at a cost along with some retention of risk at a primary level that is unavoidable. There is a limit to how many exposures small insurers can assume, especially in high-risk coastal areas, if they are to maintain their catastrophe risk within reasonable bounds and not threaten their solvency.

The story of the Poe companies is a good illustration of the “go for broke” strategy that some insurers employ when they encounter financial difficulty. Poe insured

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<sup>20</sup> This observation is not evident in Table IV.1 but is based on the determination of the top 20 insurers in 1992 using the same source of data – the NAIC financial database – used for all the calculations in Table IV.4.

<sup>21</sup> One of these insurers is State Farm which is writing all of its Florida business through its Florida-only company – State Farm Florida. Technically, the State Farm Group would not be obligated to inject capital into its Florida company if its surplus was depleted but it could choose to do so and has done so in this past. This would also be the case for other Florida-only companies that are affiliated with groups that write homeowners insurers nationwide.

more than 300,000 homes with most concentrated in the high-risk areas of Broward, Miami-Dade and Palm Beach counties. Despite major losses from the 2004 storms and declining capital, Poe aggressively added more policies in 2005, gambling that it would not incur more storm losses. Such gambling is encouraged by a regulatory system in which an insurer can shift its losses to the state (i.e., insurance consumers and taxpayers) through its insolvency guaranty association. An insurer's owners reap the potential upside of such gambles and stick the public with the potential downside. The downside scenario became fact when the Poe companies became insolvent after the 2005 storm season generating approximately \$988 million in payments (as of year-end 2007) by the Florida Insurance Guaranty Association (FIGA) for 46,162 claims from Poe's policyholders (Florida Insurance Guaranty Association, 2007).<sup>22</sup> Regulators must be the "police" who discourage and, if feasible, prevent this kind of behavior.<sup>23</sup> However, there is no evidence that Florida regulators attempted to constrain Poe's actions until 2006 when it was too late to reverse the damage that had been done. Two other Florida insurers also were placed into receivership – Vanguard and Florida Select – as a result of 2004-2005 hurricane losses.

The associated trends in market concentration in Florida from 1992-2007 are shown in Table IV.2. CR4 refers to the combined market share of the top 4 insurers ("CR" is the acronym for the "Concentration Ratio"); CR8 and CR20 refer to the combined market shares for the top 8 and top 20 insurers, respectively. The HHI refers to

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<sup>22</sup> See "Insurance Failures Spawn New Levy on Florida Policies," Palm Beach Post, October 30, 2007.

<sup>23</sup> "Market discipline" enforced by buyers can be an effective deterrent to high-risk behavior in some markets under certain circumstances, but the necessary conditions for this do not appear to be present in Florida's property insurance markets. This may also be the case for property insurance markets in other coastal areas. There are open questions about the adequacy of Florida's regulation of the Poe companies and similarly-situated insurers.

the Herfindahl-Hirschman Index – a standard market concentration measure used by economists. The HHI is calculated by squaring the market shares of each insurer and summing the squared market shares of all insurers.<sup>24</sup> The higher the HHI, the more concentrated a market is determined to be.

**Table IV.2**  
**Homeowners Insurance Market Concentration**  
**Florida: 1992-2007**

Year	CR4	CR8	CR20	HHI
1992	55.3%	70.9%	85.2%	1,440
1993	59.5%	71.6%	86.6%	1,438
1994	60.0%	71.9%	86.7%	1,236
1995	60.2%	72.2%	87.4%	1,406
1996	57.5%	71.5%	87.0%	1,266
1997	50.0%	63.8%	82.9%	1,046
1998	51.3%	64.9%	83.1%	920
1999	50.1%	62.7%	80.0%	846
2000	48.0%	61.2%	78.7%	776
2001	47.5%	60.1%	78.4%	783
2002	46.4%	59.2%	79.6%	829
2003	45.0%	59.9%	81.7%	839
2004	44.9%	61.4%	83.8%	832
2005	42.2%	60.0%	78.7%	714
2006	39.2%	54.5%	75.6%	695
2007	38.2%	52.6%	77.0%	696

Source: NAIC Financial Database; author's calculations.

The combined market share for the top 4 groups in Florida decreased steadily from 55.3 percent to 38.2 percent. The combined market shares for the top 8 and top 20 insurer groups also declined over this period but to a lesser degree as these measures reflect more insurers who have experienced smaller decreases in their market shares as well some insurers who have increased their market shares. The HHI decreased from 1,440 in 1992 to 776 in 2000, increased, and then fell again to an all-time low of 695 in 2006 and was 696 in 2007. These data suggest a continued decline in the share of the

<sup>24</sup> The HHI can range from near zero (a highly deconcentrated market) to 10,000 – the HHI that would result if there were only one firm in the market. The HHI measures the overall concentration of a market, whereas a “concentration ratio” – the combined market share of some specified number of the leading insurers – reflects only a portion of a market.

market held by the top ten insurer groups but a leveling of overall market concentration from 2006 to 2007. What 2008 will bring is uncertain as the new entrants gain market share while many of the larger national insurers appear to be decreasing their presence in the market.

Declining market concentration in Florida could be viewed as both a necessary and beneficial development to the extent that it reflects a broader diversification of risk among the leading insurers in the market. However, a caveat to the potential benefits of market deconcentration in Florida is the movement of exposures from national carriers to smaller state or regional insurers that are not pooling risk across a wide base of countrywide exposures. One aspect of this phenomenon is the movement of exposures to Florida-only companies within the national groups to increase the transparency of their Florida performance. If the smaller state and regional insurers (not part of affiliated groups) are not underwriting excessive amounts of coastal exposures and making good use of reinsurance to limit their catastrophe risk, then the positive objective of broader risk diversification could still be achieved. Single-state companies within national groups can receive support from their affiliates in the event of large losses, but these national groups cannot engage in sustained cross-subsidies of their coastal insureds. The small, non-affiliated companies potentially face a more precarious situation depending on how well they are managing their exposure to catastrophic losses,

An important factor that will affect the structure of the market is the size of Florida's Citizens Property Insurance Corporation (FCPIC). The FCPIC's rate structure has been lowered to be competitive with that of voluntary market insurers. Further, a property owner can obtain coverage from FCIPC if he or she receives a higher price

quote from a voluntary market insurer.<sup>25</sup> On the other hand, regulators are transferring large amounts of FCPIC's policies to private insurers through an aggressive depopulation program.<sup>26</sup> These different regulatory policies will have implications for the size of the voluntary market and insurers' shares of this market.

The structure of the homeowners insurance market looks somewhat different when the FCPIC is included in the analysis. Table IV.3 shows the FCPIC's direct premiums written, market share, and market rank for the period 2000-2007. We can see from this table that FCPIC's market share increased from 2.2 percent in 2000 to 17.5 percent in 2007. Its market rank rose from 9<sup>th</sup> to 2<sup>nd</sup> over this same period. The growing market share of the FCPIC reflects its increasing importance in the total (voluntary plus residual) homeowners insurance market in Florida. The HHI in 2007 for the Florida's homeowners market rises from 696 to 779 when the FCPC is included.

**Table IV.3**  
**Florida Market Structure with Citizens Property Ins. Corp.\***

Year	CPIC DPW	CPIC MS (%)	CPIC Rank	HHI w/ CPIC	HHI w/o CPIC
2000	64,157,116	2.2	9	748	776
2001	108,280,074	3.4	6	742	783
2002	229,210,800	6.3	4	767	829
2003	449,605,057	10.5	2	782	839
2004	517,903,023	10.3	2	775	832
2005	511,493,021	8.4	2	670	714
2006	1,298,388,455	16.1	2	749	695
2007	1,502,253,598	17.5	2	779	696

\* The Florida Residential Property & Casualty JUA became the Citizens Property Insurance Corp. (CPIC) in 2002.

Source: CPIC & NAIC Database, author's calculations.

<sup>25</sup> Specifically, a property owner can purchase insurance from the FCPIC if a corresponding policy from a voluntary market insurer would cost 15 percent higher than the comparable premium charged by the FCPIC.

<sup>26</sup> This means that the depopulation carriers need to charge rates that are competitive with the FCPIC, i.e., not more than 15 percent higher than what the FCPIC would charge for the policies removed. This is another way in which Florida's regulatory policies have the effect of lowering rates in the voluntary market, at least among the depopulation companies.

State Farm's recent announcement that it intends to withdraw from the Florida homeowners insurance market warrants some discussion.<sup>27</sup> State Farm's filing for a 47.1 percent overall rate increase was rejected by the FLOIR. In its filing, State Farm stated that the increase was necessary to sustain its operations in Florida. Because of the FLOIR's rejection of its rate filing (upheld by an administrative law judge), State Farm announced on January 27, 2009 that it will submit its withdrawal plan to the FLOIR. State Farm has since submitted its plan and the FLOIR has issued an order approving the withdrawal with a number of conditions.<sup>28</sup> It is expected that State Farm's withdrawal will take more than two years to complete.

State Farm's withdrawal will have a significant impact on the Florida's homeowners insurance market. It currently has approximately 1.2 million Florida customers with residential and related property coverages. While the FLOIR contends that all of State Farm's policyholders can be absorbed by other insurers, it is possible that some could be compelled to seek coverage from the FCPIC, at least for a period of time. This could greatly increase the FCPIC's size; it currently has approximately 1.1 million policies in force.

Insurers' statewide market shares (based on premiums) tell one part of the story on changes in the structure of states' homeowners insurance markets. Another important part of the story is the distribution of insurers' shares of exposures (the amount of insurance coverage) in different areas in a state. Hurricane risk varies significantly among

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<sup>27</sup> "State Farm Pulls Out of Florida Property Market," *National Underwriter*, January 27, 2008; State Farm to Pull Out of Fla. Homeowners Market," *Associated Press*, July 27, 2008.

<sup>28</sup> One of the conditions required by the FLOIR is that State Farm Florida should allow its agents to place non-renewed policyholders with other insurers rather than moving these policyholders to the FCPIC. See "McCarty Sets Tough Conditions for State Farm Fla. Pullout," *National Underwriter*, February 13, 2009.

these areas so this aspect of market structure is important in terms of how insurers are managing their catastrophe risk as well as the associated implications for homeowners.

We were able to obtain data on insurers' exposures by county by year/quarter for Florida from the FLOIR. These data are reported by insurers to the FLOIR under its QUASR system. To make the data compilation more manageable, we requested and obtained data for first quarter of every year from 1997-2006 and we also obtained 2007 4<sup>th</sup> Quarter data. This is sufficient to allow us to track trends and major changes in the distribution of insurers' exposures at a county level.

Table IV.4 compares the company-level HHI (based on amount of insured homeowners property) by county between 1997Q1 and 2007Q4. Table IV.5 compares the market shares of the 20 leading insurers in Broward, Dade, Monroe and Palm Beach counties in 1997 and 2007 at a company and group level; these counties comprise the southern portion of Florida which is considered to be the highest risk area in the state.

Two important developments are apparent in these data. The first is decreased concentration in the higher risk counties (along the coasts). The second is that the leading insurers in the state have decreased their shares of exposures in the highest risk counties and shifted their remaining exposures to their single-state subsidiaries. One can also see from Table IV.5 that "new" insurers have moved in to underwrite a significant proportion of the exposures in the four southern Florida counties. These are understandable developments as the leading insurers have had to reduce their catastrophe exposure to more manageable levels that do not incur excessive financial risk.

Another observation is that the start-up insurers that formed in the mid-1990s had been forced to write a large share of portfolios in high risk areas as they took policies out

of the residual market mechanism (see Grace, Klein, and Liu, 2006). However, when the 3-year requirement on retaining these policies expired, the majority of these insurers dropped a significant portion of these higher risk policies and they returned to the residual market or were picked up by other entrants like the Poe and Tower groups.

1997Q1						2007Q4					
Rank	County	HHI	Rank	County	HHI	Rank	County	HHI	Rank	County	HHI
1	<b>Taylor</b>	2,903	35	<b>Hernando</b>	1,439	1	<b>Monroe</b>	3,938	35	Hamilton	1,194
2	Hendry	2,459	36	Lake	1,419	2	<b>Taylor</b>	3,246	36	Lake	1,168
3	<b>Dade</b>	2,373	37	<b>Flagler</b>	1,409	3	Desoto	3,118	37	<b>Brevard</b>	1,146
4	<b>Broward</b>	2,358	38	<b>Pasco</b>	1,370	4	Hendry	2,611	38	<b>Pinellas</b>	1,144
5	<b>Brevard</b>	2,221	39	Bradford	1,346	5	Hardee	2,604	39	<b>Broward</b>	1,136
6	Desoto	2,197	40	<b>St. Johns</b>	1,341	6	Glades	2,578	40	<b>Pasco</b>	1,131
7	<b>Volusia</b>	2,113	41	Alachua	1,340	7	Baker	2,405	41	<b>St. Johns</b>	1,129
8	Osceola	2,102	42	<b>Sarasota</b>	1,327	8	Jefferson	2,390	42	<b>Citrus</b>	1,090
9	Polk	1,995	43	Leon	1,319	9	Putnam	2,247	43	<b>Okaloosa</b>	1,086
10	Okeechobee	1,966	44	Putnam	1,278	10	Okeechobee	1,941	44	Osceola	1,060
11	Glades	1,920	45	Jefferson	1,251	11	<b>Hernando</b>	1,877	45	Alachua	1,048
12	<b>Palm Beach</b>	1,848	46	Calhoun	1,240	12	Columbia	1,846	46	<b>Gulf</b>	1,047
13	<b>Monroe</b>	1,836	47	<b>Bay</b>	1,225	13	Jackson	1,784	47	Marion	999
14	<b>Dixie</b>	1,793	48	Hamilton	1,185	14	Clay	1,719	48	<b>Levy</b>	988
15	<b>Charlotte</b>	1,791	49	Union	1,148	15	<b>Duval</b>	1,705	49	Gadsden	978
16	<b>Escambia</b>	1,754	50	<b>Nassau</b>	1,138	16	Bradford	1,705	50	<b>Franklin</b>	967
17	Highlands	1,701	51	Madison	1,121	17	<b>Volusia</b>	1,660	51	Orange	967
18	<b>Pinellas</b>	1,670	52	<b>Levy</b>	1,093	18	Lafayette	1,656	52	Holmes	961
19	Seminole	1,664	53	Washington	1,093	19	<b>Dixie</b>	1,627	53	<b>Lee</b>	917
20	<b>St. Lucie</b>	1,660	54	Jackson	1,083	20	Polk	1,617	54	<b>Santa Rosa</b>	917
21	Hardee	1,655	55	Suwannee	1,074	21	Madison	1,523	55	<b>Walton</b>	877
22	<b>Santa Rosa</b>	1,622	56	<b>Manatee</b>	1,054	22	Calhoun	1,489	56	<b>Sarasota</b>	835
23	Columbia	1,619	57	<b>Walton</b>	1,032	23	Suwannee	1,472	57	<b>St. Lucie</b>	733
24	Lee	1,619	58	Marion	1,030	24	Sumter	1,455	58	<b>Manatee</b>	723
25	<b>Okaloosa</b>	1,615	59	Holmes	1,022	25	Union	1,444	59	<b>Indian River</b>	699
26	<b>Duval</b>	1,605	60	Sumter	1,022	26	Highlands	1,378	60	<b>Collier</b>	692
27	Orange	1,588	61	<b>Martin</b>	973	27	Leon	1,367	61	<b>Bay</b>	690
28	Clay	1,578	62	Liberty	964	28	Liberty	1,351	62	<b>Hillsboroug</b>	688
29	Baker	1,553	63	Gilchrist	866	29	Gilchrist	1,336	63	<b>Flagler</b>	686
30	<b>Citrus</b>	1,541	64	<b>Gulf</b>	853	30	Washington	1,313	64	<b>Nassau</b>	685
31	Lafayette	1,535	65	<b>Franklin</b>	778	31	<b>Dade</b>	1,306	65	<b>Wakulla</b>	673
32	<b>Indian River</b>	1,526	66	Gadsden	738	32	<b>Escambia</b>	1,270	66	<b>Martin</b>	574
33	<b>Collier</b>	1,496	67	<b>Wakulla</b>	730	33	<b>Charlotte</b>	1,223	67	<b>Palm Beach</b>	546
34	<b>Hillsboroug</b>	1,493		Total	1,594	34	Seminole	1,199		Total	843

Source: data from FLOIR; authors' calculations. Coastal counties in bold type.

Table IV.5				
Leading Insurance Groups in Broward, Dade, Monroe, & Palm Beach Counties: 1997Q1 & 2007Q4				
Rank	1997Q1		2007Q4	
	Group	Mkt. Share*	Company	Mkt. Share*
1	State Farm Group	38.5%	Citizens Property Ins. Corp.	19.4%
2	Florida Residential Property JUA	24.0%	State Farm Group	18.5%
3	Allstate Insurance Group	6.5%	American International Group	4.7%
4	Liberty Mutual Group	4.4%	Liberty Mutual Group	4.5%
5	Nationwide Group	4.1%	USAA Group	3.8%
6	Chubb Group of Ins. Co.'s	3.1%	Tower Hill Ins Group	3.8%
7	St. Paul Travelers Group	2.8%	Universal Property & Casualty Ins. Co.	3.6%
8	USAA Group	2.8%	Royal Palm Ins. Co	3.4%
9	Hartford Insurance Group	2.0%	St Johns Ins. Co.	2.8%
10	MetLife Auto & Home Group	1.3%	21st Century Holding Group	2.7%
11	St. Paul Guardian Ins. Co.	1.1%	Chubb & Son Inc. Group	2.6%
12	Berkshire Hathaway Insurance Group	1.1%	Northern Capital Group	2.4%
13	Bankers Insurance Group	1.0%	Hartford Fire & Casualty Group	2.2%
14	American International Group	0.7%	United Property & Casualty Ins. Co.	2.1%
15	Southern Farm Bureau Group	0.7%	Southern Oak Ins. Co.	1.8%
16	Horace Mann Insurance Group	0.5%	Security First Ins. Co.	1.6%
17	HDI U.S. Group	0.4%	American Integrity Ins. Co. of FL	1.4%
18	Atlantic Mutual Companies	0.4%	Edison Ins. Co.	1.4%
19	Amica Mutual Group	0.4%	Amica Mutual Group	1.2%
20	Safeco Insurance Companies	0.4%	ARX Holding Co. Group	1.2%
	Top Twenty	96.2%	Top Twenty	85.1%
Leading Insurance Companies in Broward, Dade, Monroe, & Palm Beach Counties: 1997Q1 & 2007Q4				
Rank	1997Q1		2007Q4	
	Company	Mkt. Share*	Company	Mkt. Share*
1	State Farm Fire & Casualty	38.5%	Citizens Property Ins. Corp.	19.4%
2	Florida Residential Property JUA	24.0%	State Farm Florida Ins. Co.	18.5%
3	Nationwide Mutal Fire Ins. Co.	4.1%	American Home Assurance Co.	4.7%
4	Allstate Ins. Co.	4.1%	Universal Property & Casualty Ins. Co.	3.6%
5	Allstate Floridian Ins. Co.	2.3%	Liberty Mutual Fire Ins. Co.	3.4%
6	Liberty Mutual Fire Ins.Co.	2.3%	Royal Palm Ins. Co.	3.4%
7	Federal Ins. Co.	2.2%	St. Johns Ins. Co.	2.8%
8	LM Property & Casualty Ins. Co.	2.1%	Federated National Ins. Co.	2.7%
9	Hartford Ins. Co. of MW	1.6%	Federal Ins. Co.	2.5%
10	USAA Casualty Ins. Co.	1.5%	Northern Capital Ins. Co.	2.4%
11	United Services Automobile Assoc.	1.2%	Unites Services Automobile Assoc.	2.2%
12	Metropolitan P & C Ins Co	1.2%	United Property & Casualty Ins. Co.	2.1%
13	St. Paul Guardian Ins. Co.	1.1%	Hartford Ins. Co. Midwest	1.9%
14	First Community Ins. Co.	1.0%	Southern Oak Ins. Co.	1.8%
15	Standard Fire Ins. Co.	0.9%	Security First Ins. Co.	1.6%
16	GEICO	0.8%	USAA Casualty Ins. Co.	1.6%
17	Great Northern Ins. Co.	0.7%	American Integrity Ins. Co. of FL	1.4%
18	AIG Centennial Ins. Co.	0.6%	Edison Ins. Co.	1.4%
19	Automobile Ins Co of Hartford, CT	0.6%	Tower Hill Preferred Ins. Co.	1.3%
20	Phoenix Ins. Co.	0.5%	Amica Mutual Ins. Co.	1.2%
	Top Twenty	91.4%	Top Twenty	80.0%
* Market share is based on the amount of exposures.				
** The FL Residential P&C JUA became the Citizens Property Ins. Corp. in 2002.				
Source: Data from FLOIR; author's calculations.				

This action by the majority of the startup companies is understandable because they probably realized that they were holding a “ticking time bomb” and could not continue to retain a number of high-risk policies without continuing to expose themselves to an excessive level of catastrophe risk. Unfortunately, for the new insurers that picked up a significant number of these exposures the time bomb exploded in 2004 and 2005 and they suffered the inevitable consequences of high losses that caused Poe to become insolvent and Tower Hill to suffer financial stress. Two other smaller start-up insurers have also been placed into receivership because of losses from the 2004-2005 storm seasons.

This reinforces an important point. Florida is embarking on a risky strategy in relying on small or geographically-concentrated insurers to underwrite a large number of homes in the most vulnerable areas. A more sustainable approach would be to encourage a large number of insurers to each write a “reasonable” number of homes in high risk areas, commensurate with the capacity and risk diversification of each company. However, it is questionable whether such an outcome can be achieved given what has occurred. On the one hand, if regulators allow insurers to charge fully adequate, risk-based rates and make other reasonable adjustments in their underwriting and policy terms, larger, national insurers should be more amenable to writing a manageable amount of high risk exposures. However, anecdotal reports suggest that some of the new companies are aggressively seeking to add new business and even attract customers from the more established insurers by offering lower rates. Hence, even if the larger companies were allowed to increase their rates, it is unclear whether their share of the market would expand even if they were willing to write new policies and well as retain existing ones. In

some sense, the die may already be cast and Florida residents will face the outcome, favorable or unfavorable.

## 2. Louisiana

Louisiana has experience much less market restructuring than Florida on a statewide basis. As can be seen in Table IV.6, all of the 20 leading insurers in 2007 were writing business in Louisiana in 2000. Most of the other leading insurers in 2007 were in the top 20 in 2000 or close to it. The top six insurers' dominance in the market has not changed much. State Farm and Allstate have remained the first and second largest writers, accounting for 51.2 percent of the statewide market in 2007, down from 55.4 percent in 2006. This is likely due to some cutback of the business these insurers write in coastal areas.

Group	2007			2006			2004			2000		
	Rank	DPW	MS(%)	Rank	DPW	MS(%)	Rank	DPW	MS(%)	Rank	DPW	MS(%)
State Farm	1	384,916,436	31.6	1	368,588,421	32.6	1	321,168,094	34.7	1	206,915,546	32.7
Allstate	2	239,137,722	19.6	2	258,243,652	22.8	2	192,296,624	20.8	2	109,882,352	17.4
Louisiana Farm Bureau	3	92,955,688	7.6	3	71,195,761	6.3	3	55,956,850	6.0	5	33,004,197	5.2
Farmers	4	79,256,293	6.5	4	59,505,070	5.3	4	38,575,964	4.2	7	13,995,825	2.2
Liberty Mutual	5	53,811,551	4.4	5	43,011,334	3.8	6	35,862,877	3.9	8	12,888,336	2.0
USAA	6	47,110,639	3.9	6	38,124,157	3.4	7	31,045,440	3.4	6	18,074,280	2.9
Republic	7	33,253,576	2.7	16	15,067,418	1.3	21	7,087,510	0.8	25	4,001,763	0.6
Travelers	8	33,015,960	2.7	7	31,783,071	2.8	5	36,030,101	3.9	4	34,021,036	5.4
Hanover	9	31,189,638	2.6	9	24,476,983	2.2	10	18,295,139	2.0	14	9,859,910	1.6
American National	10	25,689,511	2.1	8	27,390,680	2.4	9	21,621,833	2.3	12	11,521,270	1.8
Shelter Ins Companies	11	22,165,929	1.8	12	18,535,192	1.6	11	16,107,421	1.7	10	12,137,611	1.9
Allianz	12	19,446,462	1.6	13	16,618,004	1.5	13	13,310,681	1.4	15	9,458,097	1.5
Chubb	13	19,306,847	1.6	15	16,228,562	1.4	15	11,799,087	1.3	21	5,640,064	0.9
Auto Club Enterprises	14	18,677,923	1.5	10	23,722,250	2.1	17	9,512,886	1.0	40	219,477	0.0
AIG	15	17,098,274	1.4	11	18,915,951	1.7	8	21,828,510	2.4	3	45,741,995	7.2
Met Life	16	16,067,649	1.3	14	16,437,850	1.5	12	15,214,060	1.6	11	11,721,868	1.9
Safeco	17	13,835,739	1.1	22	8,940,325	0.8	22	5,500,004	0.6	26	2,563,055	0.6
Hartford	18	13,343,275	1.1	19	10,189,071	0.9	16	9,707,107	1.0	20	6,236,463	1.0
Horace Mann	19	11,557,888	0.9	20	10,172,874	0.9	19	8,770,122	0.9	22	5,536,722	0.9
Unitrin	20	10,549,244	0.9	17	11,014,030	1.0	20	8,564,490	0.9	23	4,293,595	0.7

Source: NAIC Financial Database; author's calculations.

There has been some movement among the insurers beyond the top six but the shifts have been relatively modest for the most part. For example, the Auto Club Enterprises Group moved up from its 40th position in 2000 to become the 14th largest writer in 2007 (with a 1.5 percent market share). The Republic Group moved from being the 25 largest writer in 2000 (0.6 percent market share) to the 7<sup>th</sup> largest writer in 2007 (2.7 percent market share). Some other insurers increased their market share and ranking while others declined. The insurers beyond the top six had market shares of 2.7 percent or less.

There has been a significant decline in the total number of insurer groups writing homeowners insurance in Louisiana, as revealed in Table IV.7. The total number of insurer groups in the homeowners market has dropped from 57 in 2000 to 34 in 2007. Twenty-eight insurers writing homeowners insurance in Louisiana in 2000 were not in the market in 2007. Most of these insurers were writing relatively small amounts of business but several had market shares in the 1-2 percent range. It should be noted that some of this decline is due to consolidation within the industry, as some of the 2000 insurers were acquired by other insurers that are still active in Louisiana's market.<sup>29</sup>

More companies are entering the Louisiana market that are not reflected in the above tables. It appears that most of these companies are taking advantage of the state's "Insure Louisiana" incentive program. It is not clear whether some of these companies would have entered the market without the program but it is reasonable to surmise that the grants these companies received were a significant inducement. Seven insurers have

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<sup>29</sup> For example, CNA was acquired by Allstate, Travelers merged with St. Paul, and Prudential's homeowners business was acquired by Liberty Mutual.

received grants that are not reflected in the 2007 data so the tally of market entrants should rise when the 2008 data become available for analysis.

**Table IV.7**  
**Homeowners Insurance Market Concentration**  
**Louisiana: 2000-2007**

<b>Year</b>	<b>No. Groups</b>	<b>CR4</b>	<b>CR8</b>	<b>CR20</b>	<b>HHI</b>
2000	57	62.8%	75.1%	93.2%	1,533
2001	48	63.9%	76.7%	94.3%	1,681
2002	50	64.5%	77.5%	94.4%	1,625
2003	45	65.5%	79.9%	95.7%	1,596
2004	43	65.7%	79.2%	95.8%	1,765
2005	40	67.2%	80.3%	96.4%	1,798
2006	38	65.6%	80.4%	93.1%	1,721
2007	34	65.4%	83.8%	97.1%	1,565

Source: NAIC Financial Database; authors' calculations.

Table IV.7 also shows summary market concentration measures for the Louisiana homeowners insurance market for the years 2000-2007. The HHI indicates that overall market concentration increased from 2000 to 2005 and then decreased in subsequent years. The combined market share of the top 4 insurers also increased and then declined, but the concentration ratios for the top 8 and 20 insurers have increased from 2000 to 2007. This pattern suggests that the largest writers have ceded some market share to other insurers in the top 20. It also implies that the share of the market written by smaller insurers (beyond the top 20) has also dropped. While the HHI includes all insurers in its calculation, it weights the market shares of the larger insurers more heavily so it is not surprising that it has also declined given the decrease in the market shares of the market leaders.

Overall, these data indicate that market restructuring in Louisiana has been relatively modest at a statewide level. There has been some shift in business among the leading writers in the state, but not the radical restructuring that has occurred in Florida.

The overall decline in the number of insurers groups is partly due to industry consolidation but it also reflects the exits of smaller carriers from the state. Some of these exits could have been prompted by insurers' negative perception of Louisiana's regulatory climate in the early 2000s as well as catastrophe risk concerns.

This pattern in Louisiana is consistent with the market concentration trends in other Southeastern states (discussed below), with the exception of Florida. However, a couple of caveats should be noted. One is that this analysis is only for the voluntary market and does not reflect business written by the Louisiana Citizens Property Insurance Corporation. We do not have current information on the LCPIIC's market share but it is probably somewhere in the 7-10 percent range. The second caveat is that we would likely see more significant structural changes in coastal areas. A third caveat is that our data do not reflect the entry of and business written by surplus lines insurers as these insurers do not report financial statement data to the NAIC.

The decline in market concentration and the relative changes for the market leaders versus the mid-tier insurers is consistent with what we would expect to see based on the prior discussion of the impact of catastrophe risk on insurers' cost functions and exposure management. One's view of whether this decline in concentration is good or bad depends on one's perspective. Normally, economists associate lower concentration with greater competition but the situation in Louisiana and other coastal states is peculiar. While insurers may be competing to maintain a "sustainable" market share, many are not currently seeking to increase their market share through price and product competition. Also, homeowners who have been dropped or rejected by their preferred insurer would not view this as a favorable development.

On the other hand, less concentration implies that there is a greater dispersion of exposures among carriers statewide and potentially in coastal markets which could be viewed as a positive development in terms of greater diversification of risk. In markets subject to high levels of catastrophe risk, lower concentration levels may be necessary to allow insurers to maintain their catastrophe risk at manageable levels. This discussion is especially pertinent to Florida where we see the greatest market restructuring and deconcentration in its statewide market due to its high risk and the large size of its coastal markets. In Louisiana, market restructuring and deconcentration is likely to be more pronounced in its coastal areas but this would be expected to have less of an effect on its statewide market because the coastal market represents a smaller portion of the statewide market in Louisiana than it does in Florida.

### **3. Other States**

The data indicate the market structure trends in other Southeastern states are more like that those that have occurred in Louisiana than in Florida. Tables IV.8-IV.11 provide data on the leading 20 insurer groups for Alabama, Mississippi, South Carolina and Texas in 2007 and their respective market shares in 2000, 2004 and 2006. These tables reveal that 2-5 of the 20 leading insurers in each state in 2007 were not writing business in these states in 2000. At least one or more of the 20 leading insurers in each state have entered the market since 2004.

Group	2007			2006			2004			2000		
	Rank	DPW	MS(%)	Rank	DPW	MS(%)	Rank	DPW	MS(%)	Rank	DPW	MS(%)
State Farm Grp.	1	324,472,539	28.3%	1	314,186,016	29.1%	1	275,007,487	30.0	1	103,513,285	30.3
Alfa Ins. Grp.	2	227,432,854	19.8%	2	220,403,482	20.4%	2	190,503,687	20.8	9	6,916,773	2.0
Allstate Ins. Grp.	3	137,658,351	12.0%	3	132,454,461	12.3%	3	101,174,277	11.0	3	30,711,635	9.0
Zurich	4	93,461,272	8.1%	4	75,737,297	7.0%	4	51,837,945	5.7	6	12,824,003	3.8
Travelers Ins. Co.'s	5	56,446,904	4.9%	5	50,084,796	4.6%	5	34,543,077	3.8	5	17,453,445	5.1
USAA Grp.	6	42,129,203	3.7%	6	40,662,497	3.8%	7	30,642,881	3.3	6	20,011,255	0.0
Nationwide Grp.	7	41,128,657	3.6%	7	38,895,050	3.6%	6	32,868,790	3.6	4	20,831,723	6.1
Country Ins. & Fin. Services Grp.	8	34,640,655	3.0%	9	23,872,137	2.2%	9	19,700,504	2.2			
Auto-Owners Ins. Grp.	9	28,318,749	2.5%	8	27,772,297	2.6%	8	28,070,074	3.1	7	17,191,929	0.0
Cincinnati Financial Grp.	10	22,925,867	2.0%	10	21,153,329	2.0%	10	18,219,699	2.0	10	13,913,059	0.0
Hartford	11	16,105,827	1.4%	11	14,298,982	1.3%	14	11,305,901	1.2	31	1,154,274	0.3
Liberty Mutual Ins. Co.'s	12	14,739,620	1.3%	13	13,490,786	1.2%	16	10,425,903	1.1	38	625,776	0.2
Metropolitan Grp.	13	14,227,122	1.2%	12	14,001,016	1.3%	12	13,739,838	1.5	26	1,485,628	0.4
Safeco Ins. Co.'s	14	12,941,644	1.1%	14	12,801,057	1.2%	11	13,925,599	1.5	11	3,678,662	1.1
American International Grp.	15	12,470,445	1.1%	16	10,463,282	1.0%	13	12,537,659	1.4	10	6,284,625	1.8
Chubb & Son Grp.	16	11,783,831	1.0%	15	11,201,358	1.0%	15	10,568,172	1.2	12	3,670,517	1.1
American National P&C Grp.	17	9,205,693	0.8%	17	8,590,378	0.8%	17	8,528,646	0.9	30	1,185,794	0.3
GeoVera Holdings Inc Grp	18	7,599,323	0.7%	24	2,926,723	0.3%						
National Security Grp.	19	6,205,383	0.5%	19	6,115,176	0.6%	20	5,500,457	0.6	48	78,525	0.0
State Auto Mutual Grp.	20	5,097,632	0.4%	20	4,925,162	0.5%	21	4,814,245	0.5	22	3,748,685	0.0

Source: NAIC Financial Database; author's calculations.

Group	2007			2006			2004			2000		
	Rank	DPW	MS(%)	Rank	DPW	MS(%)	Rank	DPW	MS(%)	Rank	DPW	MS(%)
State Farm Grp.	1	194,414,140	29.0	1	195,166,215	31.6	1	165,629,074	30.4	1	103,513,201	30.3
Southern Farm Bur. Cas. Grp.	2	116,672,034	17.4	2	111,313,233	18.0	11	7,285,213	1.3	34	778,528	0.2
Allstate Ins. Grp.	3	77,870,328	11.6	3	68,729,514	11.1	3	54,218,337	9.9	3	30,711,635	9.0
Nationwide Grp.	4	60,410,806	9.0	4	47,312,659	7.7	4	38,341,702	7.0	4	20,817,876	6.1
Zurich Ins. Grp.	5	42,333,464	6.3	5	36,992,113	6.0	5	31,196,929	5.7	6	12,824,003	3.8
Metropolitan Grp.	6	23,446,423	3.5	6	23,394,304	3.8	6	23,459,507	4.3	26	1,485,628	0.4
USAA Grp.	7	21,023,795	3.1	9	17,079,980	2.8	8	14,830,551	2.7	7	8,519,573	2.5
Travelers Grp.	8	20,984,211	3.1	8	17,262,832	2.8	10	10,096,841	1.9	5	17,453,445	5.1
Alfa Ins. Grp.	9	19,951,500	3.0	7	18,280,048	3.0	9	13,754,961	2.5	9	6,916,773	2.0
Shelter Ins. Grp.	10	16,391,820	2.4	10	15,318,999	2.5	7	15,313,220	2.8	8	7,690,845	2.3
Safeco Ins. Grp.	11	14,797,933	2.2	11	8,684,777	1.4	12	7,201,623	1.3	12	3,666,048	1.1
Chubb & Son Grp.	12	8,655,623	1.3	12	7,767,999	1.3	13	7,110,347	1.3	11	3,670,517	1.1
Guideone Ins. Grp.	13	7,008,054	1.0	13	5,790,270	0.9	15	4,387,371	0.8	20	2,302,441	0.7
Assurant Inc. Grp.	14	5,678,566	0.8	14	4,301,101	0.7	22	2,781,745	0.5			
National Security Grp.	15	4,988,562	0.7	15	4,242,524	0.7	16	4,254,759	0.8	48	78,525	0.0
AmFed Grp.	16	4,195,837	0.6	18	3,881,698	0.6						
Unitrin Grp.	17	3,845,390	0.6	19	3,711,178	0.6	18	3,500,107	0.6	61	1,953	0.0
AIG Grp.	18	3,723,939	0.6	17	3,923,216	0.6	14	4,552,682	0.8	10	6,284,625	1.8
State Auto Mutual Grp.	19	3,715,283	0.6	20	3,420,506	0.6	20	3,157,600	0.6	27	1,360,260	0.4
Hartford Fire & Cas. Grp.	20	3,611,185	0.5	21	2,870,135	0.5	25	2,145,851	0.4	31	1,154,274	0.0

Source: NAIC Financial Database; author's calculations.

Group	2007			2006			2004			2000		
	Rank	DPW	MS(%)	Rank	DPW	MS(%)	Rank	DPW	MS(%)	Rank	DPW	MS(%)
State Farm Grp.	1	280,143,359	25.7	1	263,139,297	25.8	1	220,210,485	25.9	1	131,697,126	24.9
Allstate Ins. Grp.	2	154,408,916	14.1	2	150,774,247	14.8	2	124,615,090	14.7	2	86,514,289	16.3
Nationwide Grp.	3	90,965,430	8.3	3	90,087,013	8.8	3	79,156,657	9.3	3	52,923,323	10.0
Travelers Grp.	4	78,115,655	7.2	6	66,488,710	6.5	5	55,641,401	6.6	30	1,960,757	0.4
USAA Grp.	5	75,687,389	6.9	5	68,453,917	6.7	6	48,904,867	5.8	5	27,609,964	5.2
South Carolina Farm Bur. Mut. Grp.	6	65,109,944	6.0	4	69,014,736	6.8	4	63,106,935	7.4	4	42,579,518	8.0
Zurich Ins Grp.	7	50,873,656	4.7	7	43,657,861	4.3	8	37,406,499	4.4	7	19,548,572	3.7
American Intrnl Grp.	8	40,262,599	3.7	8	39,789,259	3.9	7	40,419,014	4.8	12	6,218,560	1.2
Auto Owners Grp.	9	29,482,869	2.7	9	29,341,703	2.9	9	29,431,949	3.5	8	18,408,181	3.5
Liberty Mut Grp.	10	21,622,483	2.0	12	16,754,124	1.6	11	13,098,992	1.5	29	2,018,515	0.4
Assurant Inc Grp.	11	20,745,811	1.9	10	20,856,838	2.0	10	14,253,471	1.7			
Safeco Ins Grp.	12	17,086,401	1.6	13	10,357,777	1.0	19	4,904,660	0.6	25	2,274,825	0.4
Geovera Holdings Inc Grp.	13	14,930,581	1.4	11	16,918,029	1.7						
Chubb & Son Inc.	14	13,547,783	1.2	14	9,771,713	1.0	16	6,527,841	0.8	17	4,507,606	0.9
Hartford Fire & Cas Grp.	15	12,534,334	1.1	15	9,528,528	0.9	15	6,896,570	0.8	24	2,879,844	0.5
Allianz Ins Grp.	16	11,206,677	1.0	18	7,051,824	0.7	35	1,764,055	0.2	27	2,248,892	0.4
BCBS of SC Grp.	17	10,174,834	0.9									
State Auto Mut Grp.	18	8,556,773	0.8	16	8,862,541	0.9	12	9,283,675	1.1	11	8,133,464	1.5
Capitol Preferred Ins. Co.	19	8,074,918	0.7									
Balboa Ins. Grp.	20	7,774,517	0.7	23	5,815,322	0.6	38	1,069,714	0.1			

Source: NAIC Financial Database; author's calculations.

Group	2007			2006			2004			2000		
	Rank	DPW	MS(%)	Rank	DPW	MS(%)	Rank	DPW	MS(%)	Rank	DPW	MS(%)
State Farm Grp.	1	1,510,830,457	29.6%	1	1,432,993,604	29.6	1	1,337,995,812	29.6	1	939,321,629	30.6
Allstate Ins. Grp.	2	757,204,117	14.9%	2	766,045,473	15.8	2	729,858,353	16.1	3	474,796,332	15.5
Zurich Ins. Grp.	3	666,385,799	13.1%	3	613,991,916	12.7	3	529,451,524	11.7	2	624,805,626	20.4
USAA Grp.	4	391,726,030	7.7%	4	362,666,842	7.5	4	319,017,285	7.1	4	207,479,388	6.8
Travelers Grp.	5	278,874,845	5.5%	5	280,316,507	5.8	5	280,738,403	6.2	46	668,516	0.0
Nationwide Grp.	6	214,197,826	4.2%	6	195,018,835	4.0	7	169,460,035	3.7	6	88,089,449	2.9
TX Farm Bureau Mutual Grp.	7	138,627,442	2.7%	7	128,420,836	2.7	9	103,571,266	2.3	9	46,101,260	1.5
Chubb & Son Grp.	8	117,449,691	2.3%	8	116,265,259	2.4	8	117,927,115	2.6	8	57,078,275	1.9
Liberty Mutual Grp.	9	103,324,934	2.0%	9	91,756,379	1.9	10	79,606,893	1.8	10	35,167,371	1.1
Delek Grp.	10	94,132,818	1.8%	11	73,223,579	1.5						
Hartford Fire & Cas Grp.	11	92,017,758	1.8%	10	78,241,005	1.6	12	51,768,018	1.1	11	32,570,805	1.1
Safeco Ins. Grp.	12	80,994,554	1.6%	12	62,929,253	1.3	13	51,359,135	1.1	7	61,102,917	2.0
Niasco Grp.	13	49,984,631	1.0%	13	50,438,541	1.0	11	54,729,369	1.2	29	6,361,845	0.2
Arx Holding Corp. Grp.	14	49,129,306	1.0%	14	47,158,145	1.0	18	30,206,051	0.7			
Amica Mutual Grp.	15	44,221,800	0.9%	15	45,464,464	0.9	14	47,757,073	1.1	18	21,670,999	0.7
Auto Club Enterprises Ins. Grp.	16	40,633,854	0.8%	16	36,004,296	0.7	20	25,936,148	0.6	55	293,928	0.0
Cypress Holdings Grp.	17	36,405,945	0.7%	17	34,996,041	0.7	29	14,195,827	0.3			
Unitrin Grp.	18	32,165,440	0.6%	18	34,899,833	0.7	17	34,560,239	0.8	17	25,738,188	0.8
State National Grp.	19	30,399,055	0.6%	19	29,175,387	0.6	53	275,012	0.0			
Metropolitan Grp.	20	30,094,381	0.6%	23	25,014,017	0.5	24	15,786,767	0.4	21	15,126,467	0.0

Source: NAIC Financial Database; authors' calculations.

These market entrants tend to be smaller single-state or regional insurers (with some exceptions) that have come into these markets to take “advantage” of current conditions. Some of these insurers’ predominant business is in other lines but have recently entered or increased their business in the homeowners insurance market. Several

appear to be targeting states where catastrophe risk has decreased the supply of insurance from other carriers. Also, some companies formed in one Southeastern state, e.g., Florida, have extended their business to other states in the region.

The presumption is that these insurers are absorbing at least some of the exposures dropped by other insurers. It is also possible that these entrants (and possibly other insurers) are drawing insureds from other carriers by offering lower prices and/or better coverage terms. It is difficult to evaluate this second hypothesis with the data that are available. Additionally, there are anecdotal reports that more companies are entering these state markets which should become more evident in the 2008 data.

There has also been some movement among the leading insurers in each state. Some of the top 20 insurers in 2007 were not in top 20 in 2000. Further, some of the top 20 insurers have increased their market share while others have decreased their market share. Overall, the market restructuring that has occurred in these states appears to be much more modest than what has occurred in Florida and is more consistent with the degree of market restructuring in Louisiana. Among these 4 states, South Carolina has experienced the greatest market restructuring with 5 new insurers joining the top 20 writers since 2000.

Table IV.12 compares changes in market concentration among all the selected coastal states. In all states, the top four insurers have decreased their combined market share between 1992 and 2007. Also, the HHI has decreased for all of the states. However, in all but Florida and Mississippi, the top eight insurers have maintained or increased their combined share of the market. The changes in market concentration are consistent across all measures in Florida and Mississippi. This reflects the substantial restructuring

of the Florida market at all levels. Although the decline in market concentration in Mississippi is consistent across all three measures, this decline has been much less dramatic than that in Florida.

**Table IV.12**  
**Market Concentration in Selected States**  
**Homeowners Insurance: 1992 and 2007**

State	1992			2007		
	CR4	CR8	HHI	CR4	CR8	HHI
Alabama	70.1%	79.7%	1,734	68.1%	82.5%	1,473
Florida	55.3%	70.9%	1,440	38.2%	52.6%	696
Louisiana	68.2%	76.7%	1,991	65.4%	83.8%	1,565
Mississippi	71.7%	83.8%	1,923	67.0%	83.1%	1,458
South Carolina	61.3%	76.5%	1,506	55.3%	76.5%	1,126
Texas	69.7%	78.2%	1,977	65.3%	80.0%	1,410

Source: NAIC Financial Database, author's calculations.

The changes in Louisiana, Alabama, Mississippi, South Carolina and Texas are different and more difficult to interpret than those in Florida. The decline in their overall market concentration (as measured by the HHI) reflects a more even distribution of the overall market. The fact that the combined market share of eight leading insurers has increased in three of these states suggests that these insurers have decreased their business to a lesser degree. This mixed pattern could be due to the increasing competitiveness of smaller insurers and/or the decisions by mid-tier insurers, beyond the top eight, to decrease their exposures in these states.

Table IV.13 shows the number of entries and exits into each state's homeowners insurance market between 1992 and 2007 and 2004 and 2007. It is apparent that, on the whole, exits have significantly exceeded entries but the pattern varies among the states. As noted earlier, Louisiana has experienced a relatively large number of exits but there have been some market entries and more insurers have entered its market since 2007. Florida has experienced an especially high number of entries and exits. Both the problem

of catastrophe risk and general consolidation within the industry are likely to be the most significant factors contributing to the high number of exits. While exits have exceeded entries for both periods in all states (with the exception of Texas for 2000-2007), the ratio of entries to exits was higher (49.9 percent) for the 2000-2007 period than the 1992-2007 period (59.4 percent). This suggests a rise in the rate of “replacement” of exiting insurers by new insurers. This could reflect the objective of new insurers to take advantage of the retrenchment of established insurers in high-risk areas, although other factors could also contribute to this phenomenon.

**Table IV.13**  
**Entries & Exits in Selected States**

State	1992-2007		2000-2007	
	Entries	Exits	Entries	Exits
Alabama	22	60	13	29
Florida	65	96	42	63
Louisiana	17	64	9	28
Mississippi	21	61	13	31
South Carolina	38	57	20	37
Texas	47	83	36	36

Source: NAIC Financial Database, author's calculations.

This relatively greater stability in state markets other than Florida may reflect several factors. One is that insurers' plans to adjust their positions are not fully implemented in terms of what the 2007 data reveal. Another factor may be that insurers see less of a need to reduce their writings in these other states. Some of these states also appear to be taking a less restrictive approach to regulation (at least for the present) that may be helping insurers to retain a significant presence in their markets. One should also note that the proportion of coastal exposures is considerably lower in these states than in Florida and, hence, coastal risk would be expected to have less of an effect on insurers' statewide market shares.

#### **IV. Insurance Market Conduct and Performance**

Insurers' conduct and ultimately market performance or outcomes are of the greatest interest to various stakeholders. The key market outcomes include the price of insurance, the availability of coverage, policy terms, and profitability. For obvious reasons, property owners are most interested in the price of insurance as this can have a significant effect on their housing costs and budget. They are also interested in the availability of coverage and policy terms as they can affect how much insurance they can purchase, the insurers they can purchase insurance from and whether they will need to obtain coverage in the residual market. Insurers have a stake in these outcomes, but their profits (or losses) and financial viability are of particular concern to them. If insurers are unable to recover all of their costs, including their cost of capital (at least in the long run), it becomes difficult for them to justify and sustain operations in a market. Also, continuing operations under such conditions can ultimately threaten their financial strength and solvency, with adverse consequences for their owners and all of their policyholders. In this section, I focus primarily on market performance but I also discuss aspects of insurers' conduct to a limited extent.

One market outcome not assessed in this paper is the extent of "risk management" and hazard mitigation. In theory, in a properly functioning insurance market, property owners would be induced to optimize their exposure to risk. More specifically, we would expect property owners to invest in mitigation (e.g., storm proofing their homes) to the degree that it was cost effective to do so. Further, some people might elect to relocate

away from the highest-risk areas or choose to live in areas that are not prone to hurricanes. There is considerable anecdotal evidence that mitigation efforts have increased and hurricane risk and the cost of insurance have affected the location decisions of some people. However, it was not feasible to undertake a quantitative analysis of mitigation activity in this paper. This is a topic that might be addressed in further research.

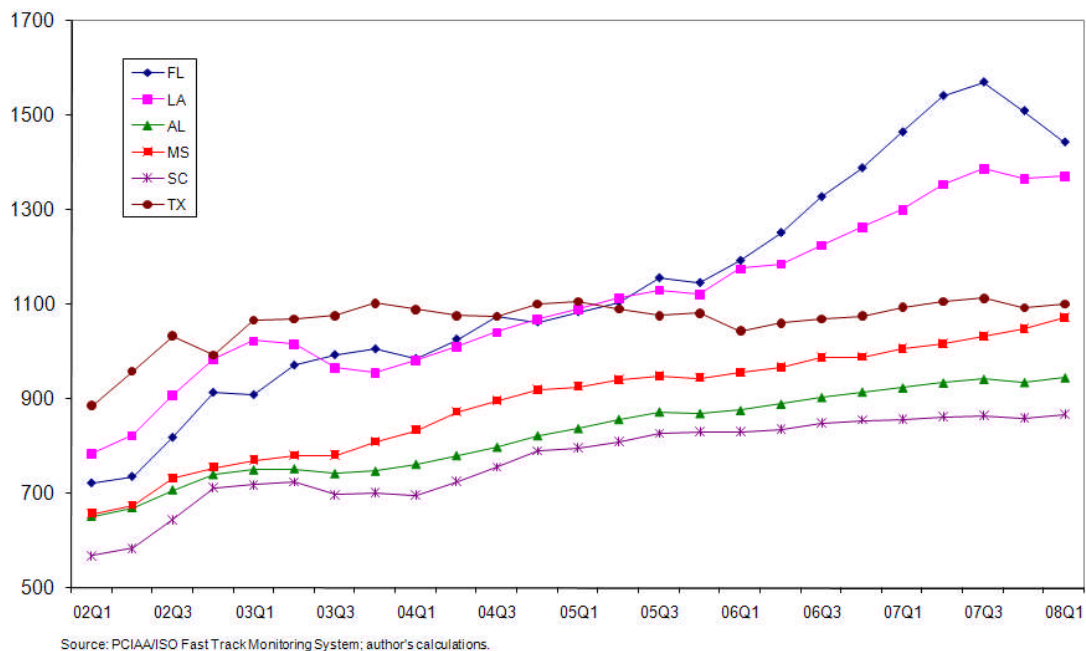
### **A. Prices**

The price of home insurance is a primary area of interest and concern. A number of insurers have filed and implemented significant rate increases in coastal areas to reflect the higher degree of risk and cost of reinsurance. There are a number of ways to measure prices and price changes – no one measure reveals everything one would want to know but each provides some information. There are also different definitions of the price of insurance. Economists tend to use a “net price” measure for insurance which is the loading added to the expected loss or “pure premium.” Here, I use a “full price” definition that includes the loss cost portion of the premium or rate charged. Consumers, regulators and others tend to focus on the full price rather than the net price.

Some indication of the price increases faced by insureds is provided by Figure V.1 which plots trends in average homeowners premiums in the six target states between the 1<sup>st</sup> quarter of 2002 and the 1<sup>st</sup> quarter of 2008. The source of data for this figure is the PCIAA/ISO Fast Track Monitoring System that compiles data on premiums, exposures, and losses on a quarterly basis from a subset of insurers representing approximately 60 percent of the total market countrywide. I calculated the average premium (total premiums divided by insured house-years) for each quarter in the series.

One can see from this figure that Florida has experienced the greatest increase in the average premium - from \$723 to \$1,443 - among the six states. Louisiana experienced the second greatest increase in its average premium from \$785 to \$1,370. The rise in the average premiums in the other states has been more modest. Of course, these average premium indications are not surprising given the changes in insurers' rate structures discussed above. From insurers' perspective, the significant price increases in Florida and Louisiana are necessary to finance the higher risk of losses. From insureds' perspective, the increase is a matter of concern and an additional financial burden. It could compel some homeowners to opt for larger deductibles or other coverage adjustments to lessen the impact of higher rates.<sup>30</sup>

Figure V.1  
Average Homeowners Premium Trends: 2002Q1-2008Q1



<sup>30</sup> Note, the average premium will reflect coverage adjustments as it based on the premiums that insureds actually pay.

It is interesting to note that the average premium declined in Florida from the 3<sup>rd</sup> quarter of 2007 to the 1<sup>st</sup> quarter of 2008. There was also a slight decline in the average premium in Louisiana over the same period. What caused these declines is unclear but it is possible to speculate on contributing factors. In Florida, the FCPIC reduced its rates in 2007 (Klein, 2009). Further, insurers in Florida were compelled to lower their rates to reflect explicit or implied reductions in the cost of reinsurance from the Florida Hurricane Catastrophe Fund (Klein, 2009). Also, there is anecdotal evidence that some of new companies entering the Florida market have cut their prices to attract more business. The potential contributing factors in Louisiana are more difficult to identify. It is possible that insurers' rates began to level off in late 2007 and early 2008.

An important caveat to the indications of these average premium trends is that they reflect the weighted distribution of the premium increases on all policies in the underlying data. The change in the average premium not only reflects changes in insurers' rate structures; they also reflect changes in the amount of coverage and other policy terms. Further, in Florida and the other states, rates vary greatly between the lowest and highest risk areas and the average statewide premium encompasses all areas. We would expect premiums to be significantly higher in the coastal areas and they have experienced a higher relative increase than interior areas within each state. States where coastal exposures represent a higher proportion of total statewide exposures, e.g., Florida and Louisiana, will have a higher statewide average premium, all other things equal.

## **1. Florida**

There are other data that provide information on average premiums at a sub-state level in Florida and the other states. I discuss these data first for Florida and then

compare patterns in Florida with patterns in other states. The first set of these data are drawn from “annual statistical data” provided by the Property Casualty Insurance Association of America (PCIAA). These data contain premiums, exposures (house-years), losses and the number of claims by standard rating territory for the years 2002-2006. I calculated average premiums for homeowners HO-3 policies (premiums written divided by house-years) for each year and territory that are shown in Table V.1 for Florida – the territories are ranked in descending order of their average premium in 2006.<sup>31</sup>

As would be expected, we see the highest average premiums and the greatest increases in average premiums in Florida. In Florida, the territory comprising Indian River, Martin and St. Lucie counties had the highest average premium in 2006 – \$2,398 – but only experienced the sixth largest increase over the period – 128.7 percent. The lowest territory – Monroe County (excluding the Florida Keys) – had a \$561 average premium in 2006. The average premiums in counties in Southern Florida (with the exception of Monroe County excluding the Florida Keys) also rank high in Table V.1. Florida tops all of the other states in these measures. It is apparent from Table V.1 that average premiums began to increase significantly in 2004 and continued to rise through 2006.

It should be noted that these average premium measures are affected by several factors including the amounts of insurance on homes and the terms of the policies covering those homes, as well as the rate structures of insurers. Hence, from these data we cannot distinguish how much of the average premium increase is attributable to rate changes. Still, it is reasonable to surmise that rate increases were a major factor causing

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<sup>31</sup> Texas is excluded because the PCIAA does not collect data for Texas.

the differences in the average premiums among territories as well as their rise over time. Also, because the latest year available for these data was 2006, they do not reflect the most recent market changes.

**Table V.1  
Homeowners (HO3) Average Premiums in Florida: 2002-2006**

<b>Territory</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Indian River/Martin/St. Lucie	\$1,048	\$1,312	\$1,677	\$2,051	\$2,398
Miami	\$1,213	\$1,453	\$1,661	\$1,799	\$2,127
Palm Beach County	\$1,072	\$1,286	\$1,479	\$1,643	\$1,946
Broward/Palm Beach	\$1,048	\$1,178	\$1,326	\$1,491	\$1,814
Miami Beach	\$755	\$859	\$1,484	\$1,589	\$1,777
Martin County	\$1,026	\$1,136	\$1,215	\$1,364	\$1,730
Dade County II	\$1,090	\$1,136	\$1,258	\$1,366	\$1,592
Broward County	\$834	\$965	\$1,179	\$1,372	\$1,543
Fort Lauderdale/Hollywood	\$842	\$925	\$1,027	\$1,146	\$1,443
Pinellas County	\$446	\$514	\$724	\$881	\$1,443
Tampa	\$684	\$776	\$920	\$1,108	\$1,382
Bay "et al" I	\$732	\$823	\$915	\$1,039	\$1,354
Hillsborough/Pinellas	\$626	\$718	\$855	\$1,047	\$1,293
St. Petersburg	\$554	\$659	\$779	\$974	\$1,242
Key West	\$214	\$290	\$847	\$1,016	\$1,114
Hialeah	\$1,120	\$969	\$928	\$984	\$1,073
Bay "et al" II	\$595	\$656	\$710	\$807	\$991
Escambia County	\$607	\$665	\$694	\$787	\$914
Orlando	\$571	\$609	\$671	\$769	\$902
Polk County	\$612	\$681	\$705	\$776	\$896
Dade County I	\$333	\$366	\$691	\$756	\$864
Osceola/Seminole	\$578	\$562	\$566	\$640	\$775
Duval County I	\$448	\$462	\$505	\$612	\$775
Brevard/Volusia	\$500	\$524	\$546	\$616	\$767
Alachua "et al"	\$510	\$474	\$468	\$523	\$627
Jacksonville	\$468	\$468	\$465	\$509	\$600
Duval County II	\$477	\$514	\$523	\$544	\$599
Monroe County	\$222	\$289	\$664	\$689	\$561
Mean	\$687	\$760	\$910	\$1,032	\$1,234
Median	\$610	\$673	\$813	\$979	\$1,178

Source of Data: PCIAA; authors' calculations

An alternative approach to measuring sub-state differences and changes in prices is to calculate an average rate per \$1,000 of coverage. This approach is less affected by differences in the amount of insurance but still confounds other coverage terms with

rates. We can employ this approach with the county-level QUASR data for Florida and the calculations for the years 1997-2007 are reflected in Table V.2.

**Table V.2**  
**FL Homeowners Insurance Rates per \$1,000 by County**

<b>County</b>	<b>1997Q1</b>	<b>2007Q4</b>	<b>County</b>	<b>1997Q1</b>	<b>2007Q4</b>
<b>Monroe</b>	\$18.98	\$33.17	Lafayette	\$2.77	\$3.94
<b>Franklin</b>	\$7.23	\$10.34	<b>Citrus</b>	\$3.24	\$3.82
<b>Dade</b>	\$6.42	\$10.23	<b>Volusia</b>	\$4.36	\$3.79
<b>Gulf</b>	\$5.35	\$7.46	Liberty	\$3.81	\$3.74
<b>Broward</b>	\$4.90	\$7.20	Washington	\$4.04	\$3.70
<b>Palm Beach</b>	\$4.45	\$6.30	Highlands	\$4.14	\$3.66
<b>Walton</b>	\$4.47	\$6.22	Madison	\$3.89	\$3.65
<b>Pinellas</b>	\$3.66	\$6.14	Gadsden	\$3.80	\$3.58
<b>Indian River</b>	\$3.80	\$5.65	<b>St. Lucie</b>	\$2.98	\$3.55
<b>Escambia</b>	\$3.25	\$5.54	<b>Charlotte</b>	\$4.15	\$3.51
<b>Bay</b>	\$3.07	\$5.50	Jackson	\$3.61	\$3.50
<b>Martin</b>	\$3.68	\$5.31	Polk	\$3.00	\$3.50
<b>Pasco</b>	\$3.64	\$5.12	Hamilton	\$3.91	\$3.49
Suwannee	\$3.95	\$5.10	Union	\$3.64	\$3.44
<b>Sarasota</b>	\$3.88	\$5.02	Gilchrist	\$3.78	\$3.41
<b>Okaloosa</b>	\$3.16	\$4.95	Putnam	\$3.60	\$3.31
Calhoun	\$3.34	\$4.89	<b>Nassau</b>	\$3.41	\$3.30
<b>Santa Rosa</b>	\$4.70	\$4.79	Bradford	\$3.38	\$3.21
<b>Brevard</b>	\$2.84	\$4.78	Jefferson	\$3.86	\$3.16
<b>Hernando</b>	\$3.90	\$4.71	Seminole	\$2.76	\$2.97
<b>Lee</b>	\$3.30	\$4.70	Sumter	\$2.67	\$2.95
<b>Dixie</b>	\$3.06	\$4.61	Alachua	\$2.53	\$2.95
<b>Collier</b>	\$3.15	\$4.51	Marion	\$2.98	\$2.88
Glades	\$3.96	\$4.49	<b>Flagler</b>	\$2.66	\$2.87
Hendry	\$3.54	\$4.49	Orange	\$3.35	\$2.86
Okeechobee	\$3.42	\$4.38	Osceola	\$3.49	\$2.86
<b>Hillsborough</b>	\$3.89	\$4.33	Columbia	\$2.71	\$2.85
<b>Manatee</b>	\$4.26	\$4.29	Baker	\$2.61	\$2.81
<b>Wakulla</b>	\$3.44	\$4.27	<b>Duval</b>	\$3.36	\$2.71
Hardee	\$3.37	\$4.18	Lake	\$2.76	\$2.65
Holmes	\$3.87	\$4.15	<b>St. Johns</b>	\$2.83	\$2.62
Desoto	\$3.93	\$4.03	Leon	\$2.42	\$2.42
<b>Taylor</b>	\$3.55	\$3.99	Clay	\$2.55	\$2.30
<b>Levy</b>	\$3.76	\$3.98	Total	\$3.87	\$4.81

Source: data from FLOIR; author's calculations. Coastal counties shown in bold type.

The results are quite striking and revealing as the county with the highest rate was Monroe with a rate of \$33.17; the county with the lowest rate was Clay with a rate of \$2.30. Monroe also experienced the greatest increase from its rate of \$18.98 in 1997. This reflects the high level of risk in Monroe County which includes the Florida Keys. Also, the fact that the counties' rankings differ somewhat between the average premium figures and the rate per \$1,000 figures reveals that differences in the average amount of insurance can mask or offset differences in the price of insurance.

Still, at least one additional caveat should be noted. While the rate per \$1,000 of coverage controls for the amount of insurance, we would expect this rate to decline with amount of insurance, all other things equal, because the fixed costs of writing and servicing a policy are spread over a larger amount of insurance. This likely accounts for some of the differences in counties' rates per \$1,000. Hence, it is not a perfect measure of price differences and changes but we would expect it to be more heavily influenced by the price of insurance than the average premium measures.

Another way to compare home insurance prices is to look at the premiums insurers would charge for a hypothetical home-policy in different areas within a state. Table V.3 shows descriptive statistics derived from 2007 premium comparisons for all Florida counties with coastal counties shown in bold type. These premium comparisons are posted by the FLOIR on its website and apply to a hypothetical policy-home. The comparison is based on a 5-year old, Florida concrete block home, with a current replacement value of \$150,000, a \$500 non-hurricane deductible, a 2% hurricane deductible, no claims, and no wind mitigation discounts. This comparison reveals significant price differences among counties, reflected by the means and medians for

each county. The highest median premium – \$4,224 – is in Monroe County and the lowest premium - \$882 – is in Clay County. The differences in the median premiums reflect the significant effect of hurricane risk on property insurance rates in Florida.

**Table V.3  
Homeowners' Premium Comparisons in Florida\***

County	Max	Min	Mean	Median	County	Max	Min	Mean	Median
Alachua	\$1,353	\$665	\$951	\$935	Lake	\$1,515	\$711	\$986	\$957
Baker	\$1,651	\$731	\$1,141	\$1,129	<b>Lee</b>	\$4,165	\$1,534	\$2,177	\$2,092
<b>Bay</b>	\$3,504	\$1,302	\$1,864	\$1,839	Leon	\$1,259	\$636	\$898	\$865
Bradford	\$1,461	\$731	\$1,056	\$1,047	<b>Levy</b>	\$1,668	\$903	\$1,287	\$1,320
<b>Brevard</b>	\$3,398	\$1,337	\$1,851	\$1,793	Liberty	\$1,617	\$766	\$1,196	\$1,202
<b>Broward</b>	\$6,737	\$2,140	\$3,452	\$3,310	Madison	\$1,651	\$732	\$1,118	\$1,097
Calhoun	\$1,656	\$766	\$1,182	\$1,170	<b>Manatee</b>	\$4,339	\$1,420	\$2,066	\$1,869
<b>Charlotte</b>	\$3,611	\$1,526	\$2,087	\$2,001	Marion	\$1,289	\$657	\$922	\$903
<b>Citrus</b>	\$2,232	\$821	\$1,494	\$1,533	<b>Martin</b>	\$4,883	\$1,840	\$2,694	\$2,506
Clay	\$1,231	\$650	\$895	\$882	<b>Monroe</b>	\$12,395	\$2,429	\$4,782	\$4,224
<b>Collier</b>	\$5,628	\$1,630	\$2,621	\$2,536	<b>Nassau</b>	\$1,325	\$748	\$1,044	\$1,056
Columbia	\$1,432	\$727	\$1,077	\$1,016	<b>Okaloosa</b>	\$4,649	\$1,312	\$2,055	\$1,933
<b>Dade</b>	\$6,825	\$2,392	\$3,941	\$3,811	Okeechobee	\$2,001	\$954	\$1,449	\$1,412
Desoto	\$1,732	\$921	\$1,323	\$1,363	Orange	\$1,456	\$748	\$1,060	\$1,036
<b>Dixie</b>	\$1,683	\$898	\$1,317	\$1,381	Osceola	\$1,962	\$798	\$1,144	\$1,091
<b>Duval</b>	\$1,350	\$732	\$986	\$991	<b>Palm Beach</b>	\$7,501	\$2,111	\$3,200	\$3,092
<b>Escambia</b>	\$4,649	\$1,347	\$2,052	\$1,899	<b>Pasco</b>	\$4,060	\$1,071	\$1,961	\$1,877
<b>Flagler</b>	\$1,592	\$779	\$1,185	\$1,177	<b>Pinellas</b>	\$3,822	\$1,555	\$2,174	\$2,046
<b>Franklin</b>	\$4,649	\$1,294	\$2,121	\$1,931	Polk	\$2,204	\$820	\$1,383	\$1,303
Gadsden	\$1,410	\$761	\$1,084	\$1,029	Putnam	\$1,144	\$660	\$913	\$937
Gilchrist	\$1,441	\$687	\$1,041	\$1,009	<b>Santa Rosa</b>	\$2,160	\$542	\$1,187	\$1,095
Glades	\$2,134	\$967	\$1,476	\$1,523	<b>Sarasota</b>	\$3,491	\$1,374	\$1,998	\$1,813
<b>Gulf</b>	\$3,504	\$1,267	\$1,890	\$1,820	Seminole	\$1,409	\$783	\$1,087	\$1,057
Hamilton	\$1,651	\$714	\$1,144	\$1,091	<b>St. Johns</b>	\$1,539	\$758	\$1,088	\$1,057
Hardee	\$1,834	\$899	\$1,292	\$1,295	<b>St. Lucie</b>	\$5,133	\$1,619	\$2,551	\$2,485
Hendry	\$2,390	\$985	\$1,529	\$1,530	Sumter	\$1,299	\$721	\$981	\$982
<b>Hernando</b>	\$3,007	\$1,049	\$1,700	\$1,674	Suwannee	\$1,651	\$745	\$1,171	\$1,167
Highlands	\$1,765	\$884	\$1,229	\$1,219	<b>Taylor</b>	\$1,682	\$898	\$1,291	\$1,333
<b>Hillsborough</b>	\$2,584	\$1,148	\$1,770	\$1,679	Union	\$1,651	\$723	\$1,076	\$1,042
Holmes	\$1,410	\$766	\$1,104	\$1,086	<b>Volusia</b>	\$2,091	\$991	\$1,459	\$1,419
<b>Indian River</b>	\$5,673	\$1,702	\$2,589	\$2,485	<b>Wakulla</b>	\$3,504	\$898	\$1,607	\$1,597
Jackson	\$1,410	\$761	\$1,068	\$1,035	<b>Walton</b>	\$3,504	\$1,210	\$1,841	\$1,811
Jefferson	\$1,523	\$815	\$1,225	\$1,286	Washington	\$1,502	\$766	\$1,204	\$1,271
Lafayette	\$1,634	\$739	\$1,165	\$1,172	<b>Mean</b>	\$2,640	\$1,045	\$1,585	\$1,549

The comparison is based on a 5-year old, Florida concrete block home, with a current replacement value of \$150,000, a \$500 non-hurricane deductible, a 2% hurricane deductible, no claims, and no wind mitigation discounts. Premium comparison accessed in January 2009.

Source: FLOIR

The great variation in premiums among companies in the same location deserves some discussion. There could be several reasons for the variation. One is that insurers' rate structures vary. A second factor could be the possibility that some insurers have rates on file for every location in the state but may not be actively writing business in some locations, especially if their rates are far below what an insurer considers adequate for a particular area. Hence, if an insurer shows an abnormally low or high premium for a certain location, the premium is essentially irrelevant if the insurer writes little or no business in that location. A third factor could be differences in the coverage terms among insurers as well as differences in their underwriting standards. There could be other reasons for the variation that are not as obvious.

## **2. Other States**

Tables V.4-V.7 show average premium calculations for 2001-2006 based on the PCIAA data for Louisiana, Alabama, Mississippi and South Carolina (data were not available for Texas). We can see from Table V.4 that average premiums do vary significantly within Louisiana. New Orleans is divided into two standard rating territories – “New Orleans I” refers to the area within Protective Levee System and “New Orleans II” lies outside the System.<sup>32</sup> New Orleans II had the highest average premium in 2006 – \$1,718 – and also experienced the largest increase over the period – 66.1 percent. New Orleans I had the second highest average premium – \$1,517 – and experienced the second largest increase – 64.9 percent. The lowest territory – Bossier/Caddo City – had a \$925 average premium in 2006. It appears that proximity to the coast or exposure to

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<sup>32</sup> Both the PCIAA and the Insurance Services Association (ISO) use a standard set of territories for the purpose of data collection.

hurricane damage is a significant factor in territorial rate differences and changes, but it is not the only factor. For instance, homeowners insurance rates tend to be higher in large cities such as New Orleans due to other perils and hazards.

**Table V.4**  
**Homeowners (HO3) Average Premiums in Louisiana: 2002-2006**

<b>Territory</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
New Orleans II	\$1,034	\$1,137	\$1,334	\$1,465	\$1,718
New Orleans I	\$920	\$1,053	\$1,216	\$1,354	\$1,517
Acadia "et al"	\$808	\$910	\$1,032	\$1,136	\$1,260
Allen "et al"	\$753	\$833	\$923	\$1,000	\$1,090
Baton Rouge	\$708	\$785	\$874	\$946	\$1,027
Calcasieu/Lafayette Cty.	\$736	\$811	\$880	\$934	\$1,016
E. Baton Rouge Cty.	\$694	\$775	\$858	\$919	\$997
Shreveport	\$666	\$738	\$835	\$911	\$953
Beinville "et al"	\$589	\$665	\$773	\$868	\$928
Avoyelles "et al"	\$641	\$708	\$793	\$866	\$926
Bossier/Caddo Cty	\$668	\$738	\$822	\$893	\$925
Mean	\$747	\$832	\$940	\$1,027	\$1,123
Median	\$708	\$785	\$874	\$934	\$1,016

Source of Data: PCIAA; author's calculations

**Table V.5**  
**Homeowners (HO3) Average Premiums in Alabama: 2002-2006**

<b>Territory</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Beach Territory	\$814	\$978	\$1,143	\$1,302	\$1,462
Mobile	\$708	\$823	\$994	\$1,118	\$1,228
Baldwin South	\$462	\$593	\$865	\$1,008	\$1,124
Birmingham	\$557	\$630	\$729	\$803	\$845
Huntsville	\$523	\$617	\$735	\$794	\$831
Baldwin North, et al.	\$420	\$501	\$652	\$736	\$787
Walker	\$489	\$570	\$690	\$755	\$785
Tuscaloosa	\$402	\$503	\$654	\$735	\$772
Autauga	\$385	\$473	\$633	\$722	\$771
Colbert, et al.	\$436	\$521	\$649	\$707	\$739
Jefferson, et al.	\$450	\$511	\$617	\$688	\$728
Montgomery	\$398	\$476	\$600	\$678	\$717
Calhoun, et al.	\$356	\$437	\$579	\$661	\$708
Mean	\$492	\$587	\$734	\$824	\$884
Median	\$450	\$521	\$654	\$736	\$785

Source of Data: PCIAA; authors' calculations

**Table V.6**  
**Homeowners (HO3) Average Premiums in Mississippi: 2002-2006**

<b>Territory</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Hancock, Harrison, Jackson Cty's	\$892	\$1,030	\$1,200	\$1,301	\$1,435
George, Pear, River, Stone Cty's	\$723	\$818	\$917	\$961	\$1,052
Amite Cty., et. al.	\$625	\$720	\$846	\$922	\$982
Hinds, Madison Radison Cty's	\$566	\$648	\$755	\$826	\$871
Jackson City	\$553	\$626	\$725	\$793	\$833
Other Counties	\$553	\$629	\$726	\$773	\$791
Mean	\$652	\$745	\$861	\$929	\$994
Median	\$595	\$684	\$800	\$874	\$927

Source of Data: PCIAA; authors' calculations

**Table V.7**  
**Homeowners (HO3) Average Premiums in South Carolina: 2002-2006**

<b>Territory</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>
Beach Area	\$990	\$1,191	\$1,586	\$1,762	\$1,951
Charleston Cty. (Ex. Beach area)	\$726	\$858	\$1,037	\$1,194	\$1,318
Beaufort/Georgetown/Horry Cty.	\$635	\$760	\$1,013	\$1,151	\$1,292
Berkeley/Dorchester Cty.	\$579	\$639	\$777	\$855	\$911
Abbeville "et al"	\$470	\$512	\$593	\$644	\$666
Lexington/Richland Cty.	\$484	\$518	\$566	\$613	\$632
Columbia	\$451	\$470	\$524	\$576	\$575
Greenville/Pickens/Spartenburg Cty.	\$440	\$467	\$517	\$561	\$579
Mean	\$753	\$824	\$957	\$1,040	\$1,103
Median	\$579	\$639	\$777	\$855	\$911

Source of Data: PCIAA; authors' calculations

In the other states, both average premiums and their increases were lower, with the exception of the “Beach Area” in South Carolina. In Alabama, the “Beach Territory” had the highest average premium in 2006 – \$1,462 – but its increase over the 2002-2006 period – 79.7 percent – was not the highest. In Mississippi, the territory comprising Hancock, Harris, and Jackson counties (the coastal counties) had the highest average premium - \$1,435 – and its increase over the period – 57.5 – percent was the highest among the territories. Areas of the state grouped in the “Other Counties” territory (i.e., areas not located in other specified territories) had the lowest average premium – \$773. In South Carolina, the territory comprising Beach Area (coastal) counties had the highest average premium in 2006 – \$1,951 – and experienced the third largest increase over the

period – 97.1 percent. The lowest territory – Greenville "et al" – had a \$579 average premium in 2006.

Tables V.8-V.10 show descriptive statistics derived from premium comparisons for Louisiana, South Carolina and Texas (data were not available for Alabama and Mississippi). The data for Louisiana shown in Table V.8 is based on a premium comparison for a 5-year-old brick home with a \$150,000 dwelling limit, a 2% hurricane deductible and a \$500 deductible for all other perils. In Louisiana, Metairie has the highest median premium – \$1,939 – and Shreveport has the lowest median premium – \$859.

**Table V.8**  
**Homeowners' Premium Comparisons in Louisiana**

<b>County</b>	<b>Max</b>	<b>Min</b>	<b>Mean</b>	<b>Median</b>
Metairie	\$907	\$2,988	\$1,931	\$1,939
Chalmette	\$931	\$3,773	\$1,964	\$1,934
New Orleans	\$1,034	\$3,329	\$1,997	\$1,907
Houma	\$948	\$5,713	\$2,152	\$1,730
New Iberia	\$789	\$3,748	\$1,643	\$1,483
Slidell	\$797	\$2,493	\$1,477	\$1,480
Batchelor	\$616	\$3,359	\$1,434	\$1,414
Lake Charles	\$678	\$2,361	\$1,379	\$1,274
Hammond	\$638	\$2,684	\$1,223	\$1,093
Lafayette	\$771	\$2,294	\$1,274	\$1,074
Baton Rouge	\$551	\$2,655	\$1,011	\$926
Alexandria	\$500	\$2,432	\$927	\$885
Monroe	\$486	\$1,807	\$879	\$865
Shreveport	\$486	\$2,512	\$959	\$859

Premium for a 5-Year-Old brick home with \$150,000 dwelling limit and 2% hurricane deductible and \$500 deductible for all other perils.

[Source: Louisiana Department of Insurance (October 2008)]

As with the average premium figures, the differences in the hypothetical premiums among locations do appear to reflect the coastal risk factor. However, as noted above, rates and premiums are affected by other perils and hazards. Still, the disparities in

the median premium in Table V.8 appear to be greater than the disparities in the average premium in Table V.4. Several factors probably account for this. One is that these premiums comparisons are more current than the average premiums and, hence, would reflect insurer rate changes since 2006.

Tables V.9-V.10 show descriptive statistics derived from premium comparisons for South Carolina and Texas. The disparities between the highest and lowest priced territories in these states are not as great as they are in Florida but they are still significant. As would be expected, coastal locations tend to have higher premiums than non-coastal areas. In South Carolina, Charleston has the highest median premium - \$2,302 - and York has the lowest median premium - \$677. In Texas, the highest median premium - \$1,766 - is in Corpus Christi and the lowest premium - \$634 - is in Austin.

**Table V.9**  
**Homeowners' Premium Comparisons in Texas**

County	Max	Min	Mean	Median
<b>Corpus Christi</b>	\$4,180	\$511	\$1,933	\$1,766
<b>Port Arthur</b>	\$4,180	\$511	\$1,931	\$1,766
<b>Galveston</b>	\$6,816	\$423	\$1,900	\$1,654
<b>Brownsville</b>	\$6,816	\$423	\$1,900	\$1,654
<b>Port Lavaca</b>	\$3,394	\$398	\$1,423	\$1,233
<b>Aransas Pass</b>	\$3,394	\$398	\$1,423	\$1,233
Amarillo	\$3,315	\$456	\$1,291	\$1,178
Dallas	\$1,779	\$425	\$1,061	\$1,060
Houston	\$2,041	\$636	\$1,146	\$1,019
San Antonio	\$1,458	\$319	\$806	\$833
Austin	\$1,158	\$381	\$652	\$634

Premium for a 10-Year-old frame home with \$150,000 dwelling limit. Policy types vary.

Source: Texas Department of Insurance (January 18, 2009)

<b>County</b>	<b>Max</b>	<b>Min</b>	<b>Mean</b>	<b>Median</b>
Charleston*	\$4,603	\$1,153	\$2,199	\$2,302
Colleton*	\$3,677	\$732	\$2,017	\$2,302
Horry*	\$4,546	\$1,171	\$2,210	\$2,168
Beaufort*	\$3,827	\$1,165	\$2,144	\$2,086
Georgetown*	\$4,493	\$976	\$2,132	\$2,086
Berkeley*	\$2,749	\$587	\$1,375	\$1,313
Jasper*	\$2,838	\$732	\$1,340	\$1,306
Dorchester*	\$2,749	\$587	\$1,275	\$1,292
Marion	\$2,195	\$590	\$1,210	\$1,133
Williamsburg	\$2,528	\$556	\$1,229	\$1,101
Dillon	\$2,195	\$635	\$1,124	\$1,076
Marlboro	\$2,195	\$621	\$1,109	\$1,074
Lee	\$2,195	\$621	\$1,082	\$1,060
Darlington	\$2,195	\$621	\$1,095	\$1,058
Hampton	\$3,536	\$617	\$1,226	\$1,048
Orangeburg	\$2,195	\$556	\$1,050	\$1,000
Florence	\$2,299	\$635	\$1,132	\$990
Clarendon	\$2,195	\$556	\$1,053	\$988
Allendale	\$2,195	\$617	\$1,013	\$958
Bamberg	\$2,195	\$556	\$988	\$958
Sumter	\$2,195	\$556	\$994	\$932
Barnwell	\$2,195	\$617	\$1,004	\$916
Calhoun	\$2,195	\$433	\$949	\$885
Chesterfield	\$2,195	\$488	\$983	\$875
Kershaw	\$2,195	\$433	\$934	\$850
Richland	\$2,195	\$433	\$900	\$825
Lancaster	\$2,195	\$445	\$909	\$817
Saluda	\$2,195	\$378	\$889	\$812
Anderson	\$2,195	\$531	\$911	\$781
Edgefield	\$2,195	\$526	\$890	\$781
Aiken	\$2,195	\$398	\$858	\$776
Abbeville	\$2,195	\$531	\$896	\$766
McCormick	\$2,195	\$531	\$903	\$766
Chester	\$2,195	\$378	\$849	\$752
Fairfield	\$2,195	\$378	\$847	\$752
Newberry	\$2,195	\$378	\$842	\$749
Lexington	\$2,195	\$433	\$871	\$748
Greenwood	\$2,195	\$401	\$835	\$743
Laurens	\$2,195	\$401	\$827	\$711
Union	\$2,195	\$378	\$840	\$708
Spartanburg	\$2,195	\$388	\$785	\$694
Oconee	\$2,195	\$436	\$798	\$693
Cherokee	\$2,195	\$401	\$800	\$682
Greenville	\$2,195	\$388	\$771	\$682
Pickens	\$2,195	\$388	\$772	\$682
York	\$2,195	\$378	\$788	\$677

Premium for a 2-Year-old frame home with \$150,000 dwelling limit, a \$500 deductible in non-coastal counties, and a 2% deductible in coastal counties.  
Source: South Carolina Department of Insurance (1/1/08)

In sum, all of these price measure comparisons tell a similar story. The price of homeowners insurance is: 1) much higher in coastal areas than in non-coastal areas; and 2) the price of insurance has substantially increased, especially in the highest risk areas. Of course, this is no great surprise but the calculations in this paper reveal some of the magnitude of the differences and changes and why property owners in high-risk areas are concerned about the rising cost of insurance.

### **B. Availability of Coverage**

The availability of insurance coverage also is an important performance outcome and an area of attention and concern to property owners, government officials and other stakeholders. “Availability” is a somewhat elusive thing to measure or quantify and can mean different things to different people. The preferred definition might be how easy or difficult it is for homeowners to obtain the coverage they want in the voluntary market from the insurers they prefer but acquiring information on this or even measuring availability so defined is difficult.

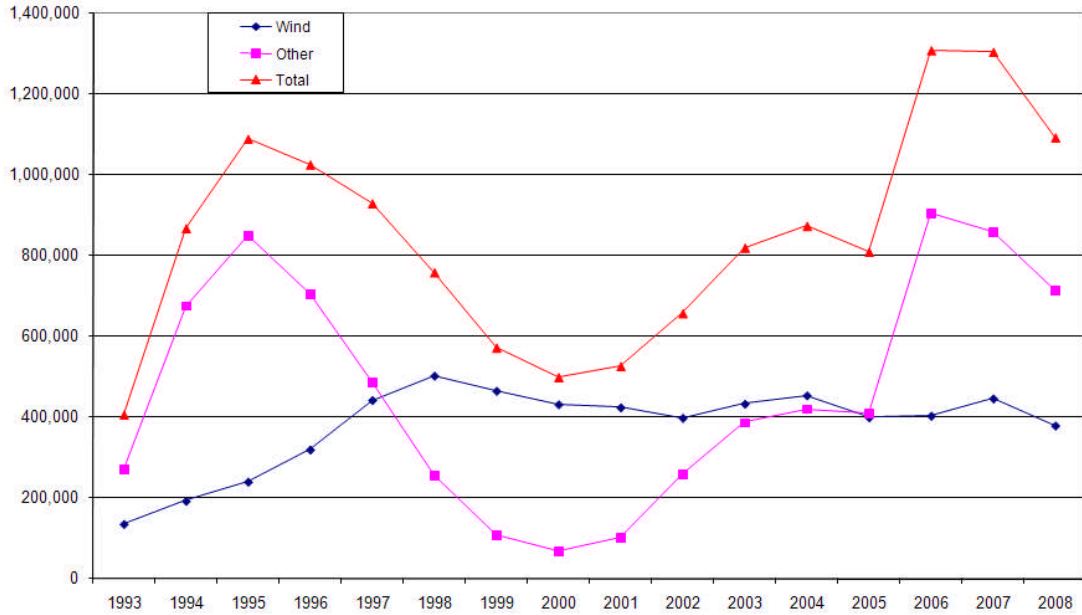
Hence, economists tend to use other insurance availability indicators such as the proportion of uninsured homes or the size of the residual market. However, there are problems with and caveats to these measures. It is difficult to obtain data on the proportion or number of uninsured homes and the lack of insurance on a home may be at least partly a matter of choice on the part of the homeowner. Also, a home may have insurance, but the amount or breadth of coverage may be considerably less than what the homeowner would prefer. Similarly, the number and proportion of homes/policies in the residual market are affected by a number of factors of which insurers’ willingness to supply insurance is only one. Finally, this measure can confound prices with the

“availability” of coverage – some homeowners may be able to choose to obtain insurance in the residual market because it costs less than what they would be required to pay in the voluntary market and there are no eligibility requirements that would prevent them from doing so. This last caveat has become more significant with the changes to the FCPIC in Florida to make it a cheaper source of insurance than the private market.

With these caveats and limitations in mind, we can look at the relative size of the residual markets in Florida, Louisiana and the other states over time to gain some perspective on availability. Understanding that this measure is affected by several factors, it is generally conceded that the supply or availability of insurance in the voluntary market is a major driver of the size of the residual market.

Figure V.2 plots the number of policies in the residual market in Florida over the period 1993-2008. We can see that the number of residual market policies increased dramatically after Hurricane Andrew and then dropped though the early 2000s. Some of this decline was due to Florida’s aggressive depopulation program. However, many of the insurers that took policies out of the residual market dropped these policies when their three-year commitment ended. This cause the number of FCPIC policies to rise sharply again and the increase further accelerated after the 2004-2005 storm seasons. The FCPIC’s policy count rose to a high of about 1.4 million near the end of 2007 after which it began to drop to its current level of about 1.1 million policies. The decline can be attributed to Florida’s new depopulation program.

**Figure V.2**  
**Florida Property Insurance Residual Market**  
**Number of Policies: 1993-2008**

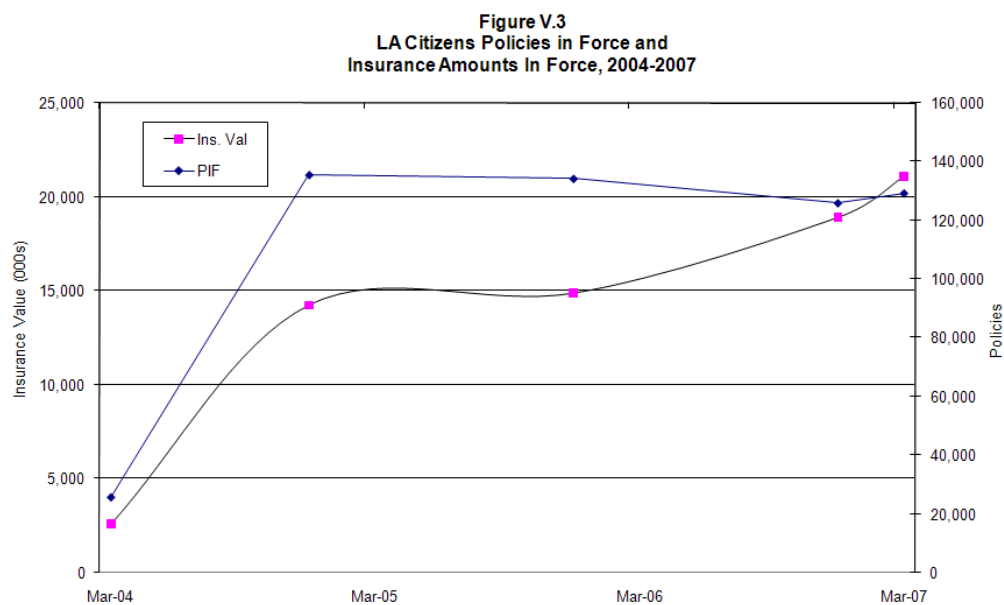


Sources: FRPCJUA, FUWA, PIPSO, CPIC

Clearly, the availability of insurance in coastal areas has been a big problem in Florida and worsened after the recent spate of hurricanes. This pattern is consistent with the decisions of several major insurers to reduce their coastal exposures. At the same time, the effects of loss shocks of insurers' reassessment of hurricane risk are confounded with the effects of Florida's regulatory policies. Attempts to constrain insurers' rate increases have likely exacerbated availability problems. Legislative measures in 2007 to make the FCPIC a more desirable source of insurance further boosted its growth but would not affect availability per se. Florida most recent depopulation efforts and their results could be portrayed as improving the availability of coverage in the voluntary market but such a portrayal must be qualified by the financial viability of takeout insurers

and other market entrants.<sup>33</sup> Regardless, availability will continue to be a big problem in Florida and whether there will be long-term, sustainable improvement is uncertain. As State Farm withdraws from the Florida market it will have a further negative effect on the availability of insurance.

Figure V.3 plots the number of policies and insurance value in force for the Louisiana residual market (the LCPIC) over the period 2004-2007. It is evident that there was a large increase in the LCPIC's size between March 2004 and March 2005. Much of this increase was likely due to the creation of the LCPIC and the conversion of Louisiana's FAIR and Coastal plans into the new facility. The LCPIC's size did not change between March 2005 and March 2006. The number of policies in force actually dropped slightly from March 2006 to March 2007 while the amount of insurance in force increased from about \$1.5 billion to \$2 billion.



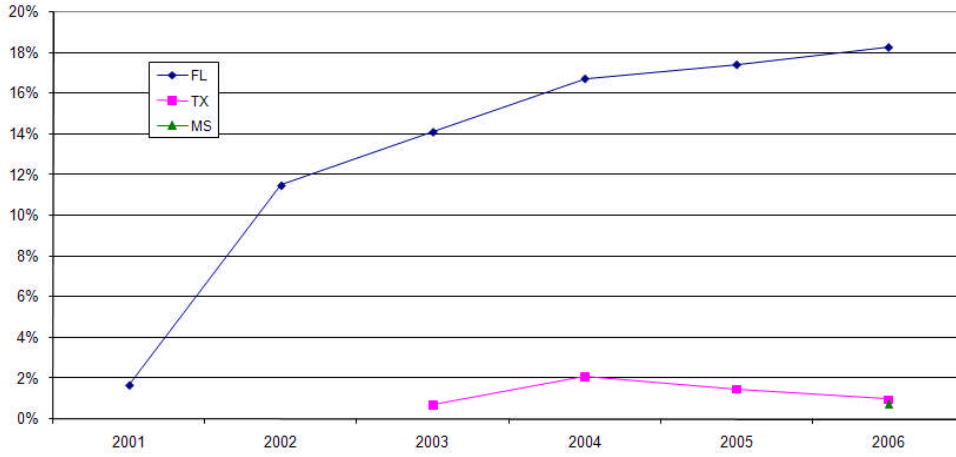
Source: LCPIC

<sup>33</sup> See Klein (2009) for a discussion of Florida's depopulation program.

This presents a mixed picture. The size of the LCPIC indicates that there is an availability problem in Louisiana that is likely concentrated in its coastal areas. At the same time, the fact there is no evident increase in its policy count after March 2005 implies that Louisiana's availability problems have not worsened. This inference from the LCPIC data may or may not be correct noting the limitations of using residual market data as a measure of availability. The fact that the LCPIC's insurance in force did increase is an interesting development that is difficult to interpret. It may reflect rising property values or the selection of higher policy limits by LCPIC's insureds. It is possible that there has been some turnover of LCPIC policies from lower value to higher value homes but such a speculation is a stretch and would require more information to assess. It also should be noted that depopulation efforts are expected to remove approximately 40,000 policies from the LCPIC.

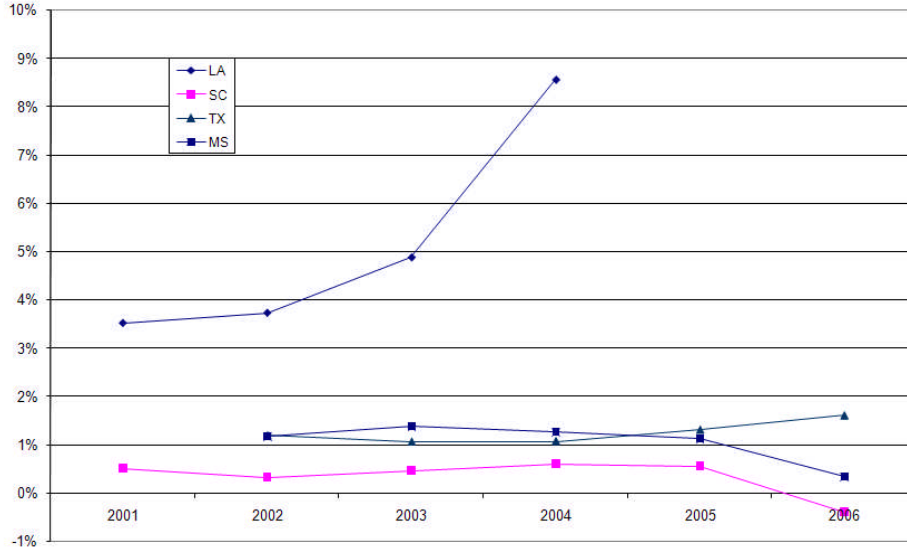
The relative market shares of the FAIR plans and the wind/beach plans (based on premiums) in Southeastern states are shown in Figures V.4-V.5. These data are somewhat incomplete and the allocation of premiums in the combined plans could be arbitrary. Figure V.4 shows the FAIR Plan market shares for Florida (2001-2006), Texas (2003-2006), and Mississippi (2006 only). The FAIR Plan portion of the LCPIC is not provided in the source PIPSO reports. It also appears that the total premiums of the FCPIC are categorized as FAIR Plan premiums although a portion of these premiums would be for wind-only policies.

**Figure V.4**  
**FAIR Plan Penetration (% of Total Statewide Premiums)**



Source: PIPSO

**Figure V.5**  
**Wind/Beach Plan Penetration (% of Total Statewide Premiums)**



Source: PIPSO

With these qualifications, we can see that the FCPIC's share of total market premiums increased from less than 2 percent in 2001 to more than 18 percent in 2006.<sup>34</sup> More recent data would likely show that its market share has increased to above 20 percent. The market shares of the two other plans in the figure – Texas and Mississippi – have ranged from 0.7 percent to 2 percent. Hence, the FAIR plans in these states have remained relatively small in relation to their respective statewide markets.

Figure V.5 shows the market shares of the wind/beach plans in Louisiana, Texas, Mississippi and South Carolina. It appears that the total premiums of the LCPIC are reflected in this figure although some of those premiums would be attributable to FAIR Plan component. Also, data for Louisiana were not available for 2005-2006. The data available indicate that the LCPIC's market share increased from 3.5 percent in 2001 to 8.6 percent in 2004. The market shares of the wind pools in the other states have ranged from 0.3 percent to 2 percent.

In sum, the data in these figures indicate that the residual markets in Louisiana and Florida have constituted much larger portions of their total markets than the other states. This observation would be consistent with the observation that availability problems in Louisiana and Florida are more significant than in the other states. As with other statewide market outcome measures, this reflects the relative levels of catastrophe risk as well as the proportions of coastal exposures in these states. This does not imply that the coastal areas in Texas, Mississippi and South Carolina have an ample supply of coverage, but that the availability problems in these areas are having a much smaller impact on their respective statewide markets.

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<sup>34</sup> These figures differ slightly from those shown in Table IV.1. Presumably, PIPSO calculations of the market shares of residual market mechanisms vary somewhat from the calculations performed from this report but the difference does not appear to be significant.

### **C. Distribution of Coverage Provisions**

The provisions of the insurance policies that property owners buy are also of some interest to policymakers and other stakeholders. The various homeowners insurance policy forms are fairly standard among insurers and insureds but there are certain provisions that are “selected” by insureds that are important. Perhaps the most important provisions are the deductibles on a policy. To better manage their catastrophe exposure and provide insureds with an option to lower their premiums, insurers have offered larger deductibles for wind or hurricane losses. It is also likely that insurers have required certain minimum wind deductibles as a condition for underwriting a policy in coastal areas. These larger deductibles are typically expressed as a percentage of the dwelling (Coverage A) limit and can range from 1 to 10 percent or more depending on the state. Larger fixed dollar amount deductibles are also sometimes used; they tend to apply to either all perils or non-wind perils but also can be used specifically for wind/hurricane losses.

To gain some understanding of the distribution and trend of deductible levels, Table V.11 shows the distribution of HO-3 policies (house-years) by deductible levels in Florida for 2000 and 2004. These data were obtained from the Insurance Services Office (ISO) and reflect information from insurers reporting statistical data to ISO (which represent approximately 50 percent of the total market). We should also note that, in 2004, the highest wind or hurricane deductible allowed was 5 percent.

As is evident in this table, “large” wind deductibles apply to a large and growing proportion of HO-3 policies in Florida. In 2004, almost 47.4 of HO-3 policies (issued by ISO reporting companies) carried a 2 percent hurricane deductible and another 11.9

percent carried a 2 percent wind/hail deductible, up from 43 percent and 3.8 percent in 2000, respectively. The proportion of policies with smaller deductibles shrunk by almost 12.5 percentage points to 40.7 percent. Interestingly, policies with a 5 percent wind or hurricane deductibles represented a very small percentage of all policies in 2004, but this is likely changing. It would be reasonable to expect that the proportion of policies with larger deductibles has continued to grow and is currently at a higher level than that indicated in the 2004 data.

**Table V.11**  
**Distribution of Wind/Hurricane Deductibles**  
**Florida: 2000 and 2004**

Wind/Hurricane Deductible	Pct. of Total House Years	
	2000	2004
\$1,000 Hurricane	0.46%	0.10%
\$2,000 Hurricane	0.05%	0.02%
\$500 Hurricane	7.25%	4.34%
1% Hurricane	1.51%	0.37%
1% Wind/Hail	0.07%	0.00%
2% Hurricane	43.00%	47.40%
2% Wind/Hail	3.79%	11.87%
5% Hurricane	0.34%	1.11%
5% Wind/Hail	0.01%	0.04%
All Other	43.53%	34.76%

Source: data from ISO; authors' calculations.

#### **D. Profitability**

Firms' profitability is an important market performance outcome. In an efficient, competitive market, long-run profits would be expected to provide firms a "fair" rate of return equal to their risk-adjusted cost of capital. If firms' profits are too low and they are unable to remedy the deficiency, it will encourage market exit or retrenchment that could

have adverse effects on consumers. On the other hand, if firms sustain high profits over the long term, it would raise questions about the competitiveness of the market.<sup>35</sup>

The problem in insurance markets, especially in lines like homeowners insurance, is that profits can be highly volatile from year to year. In other words, insurers can earn low or negative profits in some years and what appear to be high profits in other years.<sup>36</sup> Still, over the long-run, profits would be expected to “average out” near what would be considered a fair rate of return. This is close to being the case in homeowners insurance markets that are subject to “normal” weather-related perils, but hurricane-prone markets are subject to much greater volatility and much longer “return periods”. Insurers might have been prepared to handle an occasional severe hurricane (e.g., a Hurricane Andrew level event every 10-20 years) but not the back-to-back multiple-event years experienced in 2004 and 2005.

Even the relatively frequent occurrence of more modest level hurricanes, e.g., \$1-\$10 billion in losses for each, can drive insurers’ state and regional results deep into the “red” and keep them there for some time. This generates significant concern among their owners (stockholders or member-owners for mutual companies) who do not expect the managers of these insurers to continue to subject their companies to such sustained losses in any segment of their business.

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<sup>35</sup> The term “long-run” can be ambiguous in the context of catastrophe risk. In homeowners insurance markets not subject to catastrophe risk, 5-10 years might be sufficient for insurers to balance out their profits and losses. However, in homeowners insurance markets subject to catastrophe risk, it may take much longer for profits and losses to balance out (presuming that rates were set at adequate levels). This makes it difficult to assess whether profits approximate a fair rate of return over the long run.

<sup>36</sup> The “high profits” in low loss years are largely due to the catastrophe loads in insurers’ rates. From an accounting perspective, the premiums from these cat loads are treated as profits. In theory, they should be retained in an insurer’s surplus to cover catastrophe losses in the future. If insurers were allowed to establish catastrophe reserves, the cat loads could be moved to such reserves and treated as a liability which would reduce insurers’ reported profits.

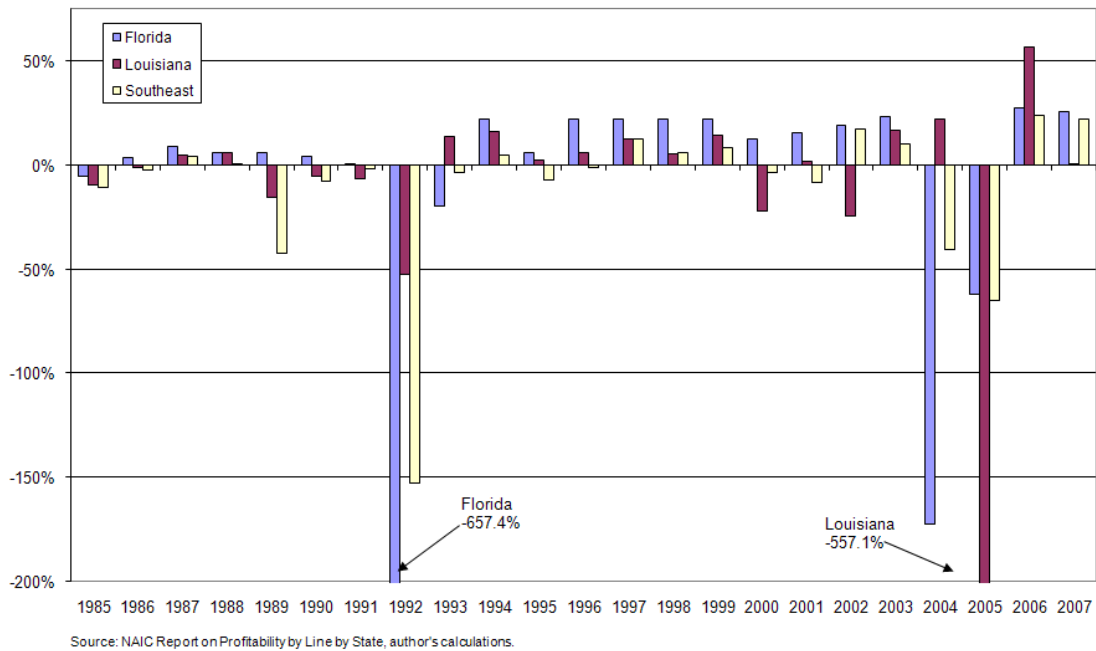
There are several different profit measures that are used in insurance, including loss ratios, underwriting ratios, operating ratios, profits on insurance transactions, and estimates of the return on equity. This paper focuses on “profits on insurance transactions” (PIT), which is a measure published by the NAIC by line and by state. This PIT measure includes incurred losses, all expenses, investment income attributable to loss and premiums reserves (not surplus), and estimated federal taxes on the income earned (or tax credits on negative income).<sup>37</sup> The resulting profit (loss) is divided by direct premiums earned to produce a profit rate.

Figure V.6 plots insurers’ annual PIT rates for homeowners insurance in Louisiana, Florida and all Southeast states combined for the period 1985-2007. As can be seen from this figure, insurers earned positive profits in many of the years during this period, but had losses (negative profits) in some years. Annual profits in a given year can appear very high, e.g., 56.7 percent in Louisiana in 2006. However, as would be expected, insurers suffered very high losses in years when severe hurricanes struck the coastal states. In Louisiana, insurers had a negative profit rate of -557.1 percent in 2005 largely due to Hurricane Katrina. In Florida, insurers generated negative profits of -657.4 percent in 1992, -172.8 percent in 2004 and -87.8 percent in 2005. The negative profits in these years stemmed from Hurricane Andrew and the hurricanes that struck the state in 2004 and 2005. The combined profits of Southeastern states of -68.2 percent in 2005 also reflect losses from Hurricanes Katrina and Rita that caused significant damage in Texas, Louisiana, Mississippi and Alabama.

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<sup>37</sup> Readers should note that all of the data used in these profit calculations are based on statutory financial statements filed by insurers. These figures come from the NAIC’s profitability report which provides detailed specifications on the formulas used to calculate its profit measures.

**Figure V.6**  
**Average Annual Profits on Homeowners Insurance Transactions: 1985-2007**

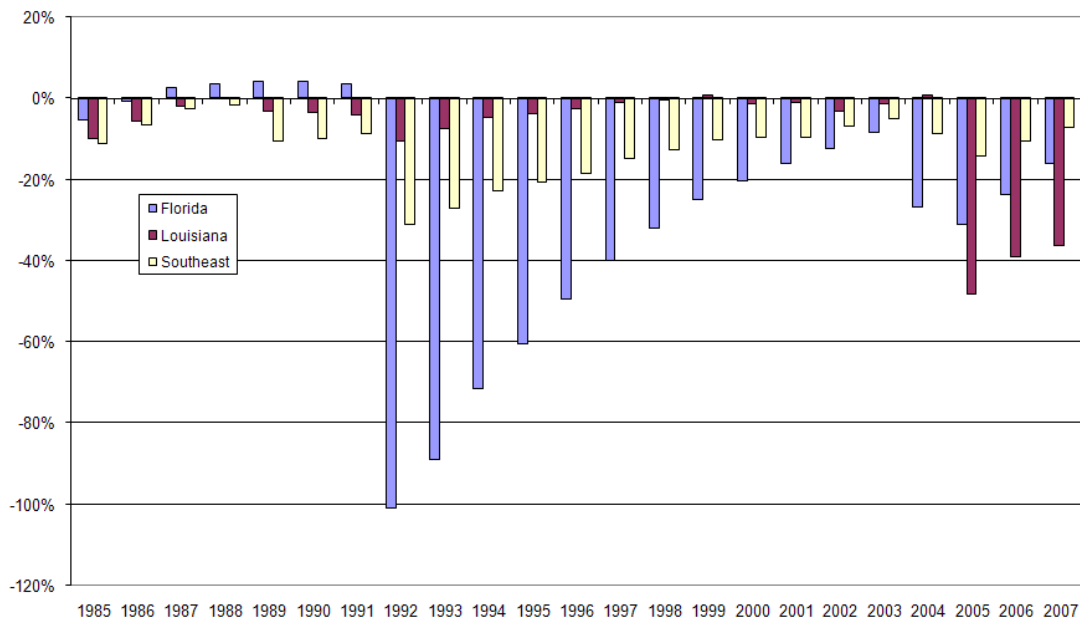


These data reflect the volatility in insurers' results caused by hurricanes discussed above. Also, as discussed above, insurers expect income volatility in hurricane-prone areas but there are issues with respect to how much volatility they can "comfortably" accommodate as well as the impact of hurricane losses on their long-term profitability and firm value.

Figure V.7 plots cumulative profits (losses) for homeowners insurance in Louisiana, Florida and the Southeast for the period 1985-2007 – each year represents accumulated profits and losses from previous years. We can see from this figure that insurers on the whole have remained under water for much of this entire period. Cumulative profits in all Southeastern states combined have remained negative since 1989. In Louisiana, cumulative profits were negative from 1989 till 1998. From 1998-2004, cumulative profits fluctuated between negative and positive and then plunged deep

into the red after 2004. In Florida, cumulative profits also became negative in 1992 and then gradually improved until 2004, when they deteriorated again. As of 2007, cumulative profits were -36.4 percent in Louisiana, -16.3 percent in Florida, and -7.2 percent in all Southeastern states combined. The losses from the 2008 storm season will further drive cumulative profits into the red for the Southeast as a whole. Hence, insurers perceive that they are again deep in the hole with respect to their Southeastern operations and it will require a sustained period of positive profits to dig themselves out of this hole.

**Figure V.7**  
**Cumulative Profits on Homeowners Insurance Transactions: 1985-2007**



Source: NAIC Report on Profitability by Line by State, author's calculations.

Of course, historical losses might be viewed as sunk costs and irrelevant to insurers' decisions regarding the future. However, if an insurer believes that this history will repeat itself, i.e., it is likely to continue to incur losses over the years ahead and is unlikely to ever earn a fair rate of return on a long-term basis, then it would be

understandable that it would be reluctant to continue to maintain the same level of operations under current conditions.

Some critics of the industry have argued that insurers' losses in a particular state or region should not be a problem if their operations in other states/lines are profitable. These critics argue that this view is consistent with the notion of pooling exposures and losses across geographic areas and lines of business. There is a problem with this argument, however. Insurers are prepared to use income from and capital dedicated to other areas and lines to absorb unexpected loss shocks from a particular line and state or region. Sustained or continuing losses from a particular segment of business is another matter. No firm would be expected to maintain operations in a segment of business that continued to generate losses over a long period and decreased firm value.

Insurers are now doing what they would be expected to do in the face of continued sub-par performance. Ultimately, insurers have to reach a position where they believe that they will generate reasonable profits over the long term and not put the solvency of their companies at significant risk or create cross-subsidies from their insureds in low-risk states to their insureds in high-risk states.<sup>38</sup> Until they reach that position, there may be further market changes. If, when and where a new equilibrium will be reached will depend on a number of factors, including actual loss experience, medium and long-term weather forecasts, risk assessments and the confidence in them, and regulatory and other government policies and actions.

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<sup>38</sup> Given the competitiveness of home insurance markets in the various states, it would be difficult for insurers to sustain substantial cross-subsidies. The payers of such subsidies would be expected to seek out insurers with lower rates that were not engaging in cross subsidization.

## **VII. Conclusions and Further Research**

This analysis of developments in the state homeowners insurance markets in the Southeast confirm and measure the significant changes that are occurring as a result of increased hurricane risk. Among these states, Florida has clearly experienced significant market restructuring. This is likely due to the substantial market pressures in Florida and also Florida's more restrictive regulatory policies. Louisiana and other Southeastern states have not experienced the degree of restructuring that has occurred in Florida. Market pressures do not appear to be as great in these states and their regulatory policies, with some exceptions, have tended to be less restrictive than those of Florida.

We may see further market restructuring in these state if larger insurers further adjust their exposures and other insurers expand their business in these states. The entry of more insurers will become evident in the 2008 data. However, we are unlikely to see dramatic changes in these markets in terms of the leading insurers' market shares, although Florida may be an exception, especially as State Farm withdraws from its homeowners insurance market.

The price of property insurance has increased significantly in coastal states with Florida leading the way, closely followed by Louisiana. Coastal rates are also considerably higher and have increased to a greater degree than rates in other areas. The availability of coverage also appears to have followed a similar pattern. There are significant availability problems in all coastal areas but they are clearly most severe in Florida and also are significant in Louisiana.

Finally, it is apparent that insurers suffered substantial losses (negative profits) in 2004 and 2005 due to the hurricanes that hit Louisiana, Florida and other Gulf states in these years. Cumulative profits have remained negative over the last 15 years and it will take several low-loss years to pull insurers back into the black. This has contributed to insurers' price and underwriting adjustments and concerns about the economic feasibility of writing home insurance in high-risk areas under the prices and terms of coverage that preceded these storm seasons. Insurers were able to improve their positions in 2006 and 2007 due to the lack of damaging hurricanes in these years, but the 2008 storms will have a significant negative effect in Texas and to a lesser degree in Louisiana. Hence, many insurers will likely continue to view their "situation" as tenuous until storm activity lessens and their long-term profits approach a level that is more consistent with their cost of capital.

Clearly, there is a need to continue to monitor and enhance our understanding of property insurance markets affected by catastrophe risk. Greater insights into the dynamics of these markets will help to identify economically-sound strategies that might have the most beneficial effects for both insurers and property owners. Future research will also benefit from new data that will continue to track the evolution of property insurance markets and how they respond to changes in their natural, economic and regulatory environments.

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